## HYDROGEOLOGICAL STUDY PROPOSED DEVELOPMENT, 200 MAPLE CREEK COURT



Project No.: CP-18-0512

Prepared for:

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McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by Kris and Dana Norris to conduct a hydrogeological assessment to determine the yield and quality for the existing on-site water well and its ability to meet the supply requirements for the proposed development located at 200 Maple Creek Court, Ottawa, Ontario ("the Site"). This study has been prepared in support of a proposed development on primarily vacant land with portable offices and garages on-site. An outline of the property is presented on Figure 1.

Ground surface at the Site is generally relatively flat; sloping gently down to the northeast. Site elevation ranges between approximately 113 to 120 metres above sea level (m asl). Surface drainage is interpreted to reflect surface topography, draining to the north and northeast across majority of the Site. Regional groundwater is interpreted to flow to the north and northwest, towards the Ottawa River.

To satisfy the requirements of this hydrogeological assessment, McIntosh Perry tested an existing drilled domestic water supply well, located at 200 Maple Creek Court (Test Well 1, TW1), located along the northern boundary of the Site, approximately 0.6 km east from Maple Creek Court. The well was tested for water quality and quantity.

Test Well 1 was pumped for a duration exceeding six (6) hours on two separate occasions. The first occasion took place on January 30, 2019 and consisted of a step-test in which one sample (TW1-1) was taken. The second occasion took place on February 25, 2019 and consisted of an 8-hour pumping test. Two samples were taken during this time (TW1-1 and TW1-2). The pumping rate during the 8-hour pump test (approximately 11.36 L/min) is considered sufficient to supply the development of a new pre-engineered building located at 200 Maple Creek Court.

Water quality results indicate that the bedrock aquifer provides good quality water, which may be considered suitable for human consumption. All water from Test Well 1 (TW1) sampling the local bedrock aquifer meets all applicable health-related standards and guidelines at the present time. Some treatment may be considered for aesthetic objectives only.

On-site soils within the proposed development area consist of hardpan materials underlain by limestone. Approximately 1.2 m to 9.8 m of overburden were present in the area based on well records. The infiltration capacity of overburden material at the site should be confirmed using field percolation tests at the septic system design phase. Any septic systems should be constructed with all appropriate setbacks as per Ontario Regulations and the Ontario Building Code.

The Site appears to be capable of supporting the proposed development, from a hydrogeological perspective.

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#### 1.0 INTRODUCTION

McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by Kris and Dana Norris of NCM Hydrovac Services to conduct a hydrogeological assessment to determine the yield and quality for an existing on-site water well (TW1) at 200 Maple Creek Court, Ottawa, Ontario ("the Site"); location for the Site is presented on Figure 1. TW1 was assessed to determine its ability to meet the supply requirements for the proposed development of a pre-engineered building at this location. The work included comprehensive water quality testing at TW1. An outline of the Site, showing the neighbouring properties and an aerial photograph of the property, is presented on Figure 2 – Site Layout. At the present time, the Site consists primarily of vacant land, with portable offices and three on-site portable canopy-tents used as storage areas. This work was conducted in general accordance with the City of Ottawa Hydrogeological and Terrain Analysis Guidelines, as well as the Ontario Ministry of Environment, Conservation and Parks (MECP) guidance as follows:

- Procedure D-5-5: Technical Guideline for Private Wells: Water Supply Assessment (August 1996)
- Procedure D-5-4: Technical Guideline for Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment (August 1996)

TW1 is located along the northern boundary of the Site, approximately 0.6 km east from Maple Creek Court (Ottawa, Ontario). TW1 was originally an un-instrumented borehole, in which a well was constructed on April 24, 2001.

The Site is legally described as follows:

CON 2 N PT LOT 7 RP 4R-17169; PART 6, CITY OF OTTAWA

This Hydrogeological Assessment addresses the following items:

- General site setting information
- Geological and hydrogeological background
- Site specific conditions

## 2.0 BACKGROUND

#### 2.1 Site Setting

The Site is located at 200 Maple Creek Court, south of Tansley Drive, within the City of Ottawa (Figure 1). The Site is designated as 'Rural General Industrial' in the City of Ottawa Zoning By-Law.

At the present time, the Site consists primarily of vacant land, with portable offices and three canopy garages. The Site consists of vacant land, with man-made ponds along the eastern border. On-site vegetation consists primarily of grasses, with shrubs and small trees present along the fence lines.

On-site elevation ranges from approximately 113-120 m above sea level (asl) as shown on Figure 3. The Site slopes down to the north, toward the Ottawa River.

The climate is humid continental with cool winters and warm summers. The 1981-2010 mean annual precipitation is approximately 919.5 mm with 175.4 cm as snow, and the mean daily temperature is 6.6 °C (Environment Canada Climate Normals for Ottawa, ON).

#### 2.2 Neighbouring Properties and Land Uses

The Site is bounded to the north by vacant forested land and commercial properties on 137, 143, 147, and 151 Tansley Drive, Maple Creek Court to the west, and by agricultural and wooded land to the south and east.

The nearest residential properties relative to the Site are located approximately 600 metres to the east, along Oak Creek Road and Newill Place. Based on a review of MECP Water Well Information System (WWIS) records, it appears that all residences in the area are privately serviced with wells and septic systems.

Figure 3 – Surrounding Land Use, presents the land usage for the surrounding area along with topographical and hydrological information.

#### 2.3 Hydrology

Ground surface at the Site is generally relatively flat, sloping gently down to the north Surface drainage is interpreted to reflect surface topography, draining to the north and northeast across the Site (see Figure 3). A wooded area and man-made ponds are present to the east of the Site. Local overburden and shallow bedrock groundwater likely flows to the east and south, toward an adjacent wetland and watercourse, respectively. The closest permanent water body is a small tributary that crosses Carp Road, approximately 600 metres southwest of the Site. Regional groundwater may flow to the north and northwest, towards the Ottawa River.

#### 2.4 Geology and Hydrogeology

The majority of on-site soils are described as coarse-textured glaciomarine deposits (sand and gravel with minor silt and clay), while the northeastern portion of the Site consists of diamict (stone-poor sandy silt to silty sand) (OGS 2019).

Published geological mapping by the Ontario Geological Survey (OGS) in the area reveals that the site and immediate surrounding area is underlain by Middle to Upper Ordovician bedrock, described interbedded bioclastic limestone, sublithographic to fine crystalline limestone of the Verulam Formation (OGS 2019).

OGS mapping is generally consistent with overburden descriptions from WWIS records within 500 m of the Site, which describe bedrock as predominantly limestone with some granite. Bedrock was encountered at depths ranging from 3.35 to 50.29 m below ground surface (m bgs).

The bedrock described in the well record for TW1 is consistent with the Verulam Formation, consisting mainly of limestone.

#### 2.4.1 Recharge and Discharge Areas

Based on a review of topographic data, geological maps, and a Site visit, it is our interpretation that the Site is predominantly a groundwater recharge zone. Drainage for the Sites appears to be good, with no areas of ponded water (existing ponds are man-made) or poor drainage observed. Further, the Site is not located in an area of known karst topography and is well-drained. An unevaluated wetland area is present immediately north/northeast of the Site, and is considered to be a discharge area. Within the vicinity of TW1, overburden soil thickness (consisting of sand and gravel and/or clay) varies from 1.2 to 9.8 m. As such, this Site is considered to be within a hydrogeologically sensitive area.

#### 2.4.2 Potential Sources of Contamination

A windshield survey of the surrounding area was conducted in combination with a review of maps and zoning information. The Site is located in a predominantly commercial area with some vacant forested land. The property immediately north of the Site is occupied by an auto body shop and truck repair shop, and to the south is a yard containing scrap metal and derelict vehicles. While these uses may pose a source of contamination to shallow groundwater the Site, nearby WWIS records show relatively competent shallow bedrock approximately 10 m bgs, which mitigates this risk.

The Site and surrounding properties are not connected to the City of Ottawa's wastewater treatment system. As such, there are presumably private on-site wastewater systems at nearby properties.

#### 2.4.3 Water Well Record Review

Thirty (30) water wells were located within approximately 500 m of the Site, all of which were listed for domestic purposes, and all but one were completed in bedrock. The MECP Water Well Information System records are shown on Figure 4, and data is summarized in Appendix B.

Of the bedrock wells identified, the total well depths ranged from 14.6 m to 106.1 m, with an average depth of 59.5 m. The overburden thicknesses ranged from 1.2 m to 9.8 m, with an average overburden thickness of 6.2 m. Reported static water levels ranged from 0.55 to 9.14 m bgs, and water was found at an average depth of 30 m bgs.

Reported well yields ranged from 23 L/min to 75.7 L/min, which is above the MECP minimum rate of 13.7 L/min.

## 3.0 METHODOLOGY – HYDROGEOLOGICAL ASSESSMENT

McIntosh Perry conducted a detailed hydrogeological investigation at the Site to determine the yield and quality of the existing on-site water well and its ability to meet the supply requirements for the proposed development located at 200 Maple Creek Court, Ottawa, Ontario. As noted in the above sections, the work generally followed the Guidance of MECP Procedure D-5-5: Technical Guideline for Private Wells: Water Supply Assessment. The test well (TW1) will be used as the source of water supply for the proposed development. The well was drilled in April of 2001 by Capital Water Supply Ltd. in accordance with O.Reg. 903 (Wells), as amended. According to the MECP well record, TW1 extends approximately 85.04 m bgs, with a 0.159 m (6 ¼ inch) diameter steel casing extending approximately 10.36 m bgs. The MECP Well Record for TW1 is included in Appendix C.

The initial estimation of the yield and quality of water from the test well was made by the driller during installation in 2001, and was confirmed by McIntosh Perry personnel during a step-test and an 8 hour pumping test. The recommended pumping rate as noted on the well record is 11.36 litres per minute (L/min).

As TW1 had been un-instrumented and unused for some time, it was redeveloped and disinfected to ensure that "fresh" water was available prior to testing. The redevelopment of the well took place on January 30, 2019 and involved the administration of a step-test where pumping rates were increased by regular increments (11.36 L/min, 15.14 L/min, 18.93 L/min) throughout the duration of the test. Disinfection of the well was completed on February 15, 2019; 1.5 litres of liquid chlorine bleach (8.25% sodium hypochlorite) was poured into the well. The well was not pumped within 24 hours after the disinfection, and instead was first pumped after the disinfection during the pumping test on February 25, 2019.

Following redevelopment and subsequent recovery of the well, McIntosh Perry conducted a pumping test on February 25, 2019. The minimum duration for the pumping test per MECP requirements is 6 hours, though it is noted that the City of Ottawa requires 8 hours of pumping for this commercial development. During the testing period, water levels in TW1 were measured using an electronic water level tape. Water quality (pH, temperature, conductivity, turbidity, and total dissolved solids) was also monitored and recorded in the field during the test. Throughout the pumping test, both the quality and drawdown were recorded with samples collected for laboratory analyses within the first and last hours of pumping. Analytes included standard "Subdivision Suite" as well as microbial parameters. At the conclusion of pumping, groundwater elevation was monitored for recovery until 95% recovery or 24 hours, which ever came first. However, during the administration of the recovery portion of the 8-hour pumping test, 95% recovery through manual readings was not able to be achieved as the logger had become lodged within the well. The logger data thus monitored the well for 24 hours after the pump was shut off.

All groundwater samples were collected unfiltered and unchlorinated, directly into clean bottles supplied by the analytical laboratories (Eurofins Laboratories and Paracel Laboratories Ltd., Ottawa, ON). Eurofins Laboratories was used for samples collected during the step-test, and Paracel Laboratories Ltd. was used for

samples collected during the 8-hour pumping test. The samples were kept on ice and shipped directly to Eurofins and Paracel under strict chain of custody procedures. All of the samples were received by the laboratory within 24 hours of collection.

Eurofins and Paracel are fully accredited by SCC/CALA, and have accreditation for Ontario Safe Drinking Water Act (OSDWA) testing.

Drawdown and recovery data from the pumping test were plotted and analyzed using the Cooper-Jacob solution. The hydraulic conductivity (K, m/s) and transmissivity (T,  $m^2/d$ ) of the aquifer were estimated. Storativity cannot be assessed properly without the use of an additional observation well, which was not available at the time of the test.

#### 4.0 RESULTS

A drawdown curve and tabular data from the pumping test at TW1 are available in Appendix D and Table A1, respectively. A summary of groundwater quality data and the official Laboratory Certificates of Analysis are available in Tables A2 and A3 and Appendix E, respectively.

#### 4.1 Static Conditions

Prior to the initiation of pumping, water levels were measured in TW1. The static groundwater level was recorded at 3.569 m below top of casing (btoc) at the time of the pumping test (t=0). Assigning an arbitrary site benchmark of 115.00 m (local) to the top of the casing, the static water elevation in the well was 111.43 m.

Standing water or evidence of groundwater discharge was not observed at the test well location at the time of the pumping test.

#### 4.2 Step-Test

A level logger was placed in TW1 three weeks prior to well redevelopment and disinfection. Based on three weeks of data, the average water level recorded was 8.34m btoc, with the lowest recorded level measured at 14.4 mbtoc, and highest recorded level measured at 8.032 m btoc.

In the primary stages of the step-test, the pumping rate was set at 3 gallons per minute (GPM) (11.36 L/min). After approximately 2.5 hours, water levels began to stabilize and increase slightly, thereby indicating fresh water being drawn into the water column. The pumping rate was then increased to 4 GPM (15.14 L/min). Water levels began to stabilize again in approximately 3 hours (t=5.5 hours), with recorded water levels of 36-37 m btoc. The pumping rate was subsequently raised to 5 GPM (18.93 L/min), allowed to run for approximately 2.5 hours, after which time the pump was shut off at t=8.25 hours.

Groundwater samples were also collected towards the end of this step-test (450 minutes after the start of the pumping test). These samples were collected unfiltered and unchlorinated, directly into clean bottles supplied by the analytical laboratory (Eurofins Laboratories, Ottawa, ON). The samples were kept on ice and shipped directly to Eurofins under strict chain of custody procedures. All of the samples were received by the laboratory within 24 hours of collection. A copy of this chain-of-analysis and laboratory results are presented in Appendix E.

#### 4.3 Pumping Test

A pumping test was conducted at TW1 under the supervision of McIntosh Perry staff. Water was pumped directly from the test well using a pump and tubing supplied by Saunders Drilling Inc. The water discharge was directed away from the well, and was allowed to flow overland across the Site. At the time of the pumping test, the weather was approximately -5°C, windy and overcast.

All water level measurement data are presented in Table A1, appended to this report.

Based on a short-term (1 hour) pumping test completed by Capital Water Supply Ltd. upon completion of the well in 2001, it was estimated that a pumping rate of approximately 11.36 L/min (3 GPM) would be sustainable at the well. A pumping rate of 11.36 L/min was used for the 8-hour test.

On February 25, 2019, at the commencement of the pumping test, a static water level of 2.825 m btoc was measured in the well. The pump was set at a depth of 82 m, corresponding to an available drawdown of 79.175 m. At 8:59 AM, the pump was turned on and the flow rate adjusted to approximately 11.36 L/min. This pumping rate was maintained with minimal variation for the duration of the test (483 minutes total).

The water level ranged between 2.825 to 18.761 m btoc, with a maximum drawdown of 15.936 m observed. At the end of the test (t = 483 minutes), 11.19 m of the available water column remained above the level logger (set at 28.9 m btoc); this would represent at utilization in the order of approximately 17.6 percent. At 492 minutes following commencement of the pumping test, drawdown was recorded at 10.135 m (12.96 m btoc). This represents approximately 36.4% recovery. Recovery was not able to be fully assessed through manual water level readings as the water level tape became lodged in the well against the pump wiring. As such, the remainder of the recovery was monitored through level logger data. The final recovery (from level logger measurements) was achieved approximately 600 minutes after the start of the pumping test at 3.218 m btoc. Results of this data can be found in Table A1.

#### 4.4 Well Yield

The pumping test undertaken by McIntosh Perry provides a reasonable indication of the yield for TW1. During this test, approximately 5,450 L of water was pumped from the well; this volume exceeds the daily demand for water for an office and warehouse (2550 L/day), as provided by the Ottawa Septic System Office (see Appendix G for details).

#### 4.5 Transmissivity

A summary of the well and hydrogeological properties determined during the testing work at the Site are presented in Appendix D. A transmissivity of  $0.2 \text{ m}^2$ /d was calculated using the Cooper-Jacob method. Assuming an aquifer thickness of 74.676 m (corresponding to the interval between the bottom of the casing and the bottom of the well), a hydraulic conductivity of  $2.9 \times 10^{-8}$  m/s was calculated. This value is generally consistent with sandstone, limestone, and dolostone, all of which are described by MECP WWIS records in the area.

Storativity (S) could not be calculated as no observation wells were available for measurement at the time of the pumping test.

#### 4.6 Long Term Yield

The long-term yield (maximum recommended pumping rate) of Test Well 1 was estimated based on the following factors:

- Observations during eight-hour pumping test
- Calculated properties

The theoretical long-term safe yield of the pumping well may be calculated by the Farvolden Method. The calculations for Transmissivity are presented in Appendix D.

$$Q_{20} = 0.68 T Ha S_f$$

Where:

- Q<sub>20</sub> is the twenty year safe yield
- T is the transmissivity
- Ha is the available water column height
- S<sub>f</sub> is a safety factor (0.7)

Based on the Farvolden Method, calculations indicate that a twenty year safe yield for TW1 is in the order of 7.8 L/min. This means that TW1 could sustain continuous pumping for 20 years at this rate, which is an improbable usage rate with normal water consumption. With normal use, the pump will cycle on and off on a much shorter time scale, allowing the well to recharge.

It should also be noted that the well driller's recommended pumping rate for TW1 is 11.36 L /min (3 GPM). Therefore, the test rate administered during the 8 hour pumping test was 11.36 L/min. Based on the results of the step test in which the pumping rate (set at 15.14 L/min) had reached a plateau/became stable, as well as the results of the pumping test in which the pumping rate (set at 11.36 L/min) also became stable approximately 390 minutes after the pumping test began, McIntosh Perry is of the opinion that the aquifer is capable of supplying water at a flow rate which is greater than the minimum flow rate of 13.7 L/min as outlined in Procedure D-5-5.

#### 4.7 Water Quality

Laboratory Certificates of Analysis for samples collected from TW1 are presented in Appendix E. A summary of field and laboratory results from TW1 is presented in Tables A2 and A3. One sample (TW1-1) was taken during the step-test on January 30, 2019, and two (TW1-1, TW1-2) were taken during the pumping test on February 25, 2019. During both tests, the samples were taken directly from the on-site pump tubing into laboratory supplied containers. The sample from the step-test was labelled as TW1-1. The water samples taken on February 25, 2019 were labelled TW1-1 and TW1-2, respectively.

All Laboratory Certificates of Analysis for both sampling events are presented in Appendix E. In addition, all analytical results were compared to the Ontario Drinking Water Standards, Objectives, and Guidelines (ODWS).

Based on the analytical results from January 30, 2019 and February 25, 2019, no Maximum Acceptable Concentrations (MAC) as per the Ontario Drinking Water Standards (ODWS) were exceeded. Analytical testing indicates that water quality for TW1 is suitable for potable purposes; however, some Aesthetic Objectives (AO) and Operational Guidelines (OG) were exceeded.

Criteria for the following parameters were exceeded in sample TW1-1 during the step-test:

Operational Guidelines (OG):

• Hardness: 195 (TW1-1) – OG 100 mg/L

Aesthetic Objectives (AO):

- Sulphide: 2.13 mg/L (TW1-1) AO 0.05 mg/L
- Turbidity: 17.9 NTU (TW1-1) AO 5.0 NTU
- Iron: 0.54 mg/L (TW1-1) AO 0.3 mg/L

Criteria for the following parameters were exceeded in sample TW1-1 and TW1-2 during the 8-hour pumping test:

Operational Guidelines (OG):

• Hardness: 244 mg/L (TW1-1) and 245 mg/L (TW1-2) – OG 100 mg/L

Aesthetic Objectives (AO):

- Colour: 42 TCU (TW1-1) AO 5 TCU
- Sulphide: 0.35 mg/L (TW1-1) and 2.92 mg/L (TW1-2) AO 0.05 mg/L
- Turbidity: 24.8 NTU (TW1-1) and 9.9 NTU (TW1-2) AO 5.0 NTU
- Iron: 2.43 mg/L (TW1-1) AO 0.3 mg/L
- Manganese: 0.069 mg/L (TW1-1) AO 0.05 mg/L

Elevated colour results were found only during the pumping test. Elevated colour is likely related to the presence of iron and manganese in the water; the iron concentration was recorded at 2.43 mg/L within the first sample taken (TW1-1), then was observed to drop to levels below the detection limit within the second sample taken (TW1-2). It is possible that either seasonal fluctuations or elevated oxidation conditions due to recent redevelopment were responsible for the colour exceedance.

Turbidity measurement during the pumping test was first recorded at 15.2 NTU (at 120 minutes after the pump was turned on), and then dropped to 0.95 NTU (at 480 minutes after the pump was turned on). Thus, turbidity measurements taken during the field met criteria during the course of the pumping test.

Additionally, while the detected concentration for sodium in all samples taken during the step test and pumping test met the ODWS, it is noted that the detected concentrations exceeded the "warning level" 20 mg/L benchmark utilized for individuals on sodium restricted diets; future users should be notified.

All noted OG and AO parameter exceedances of ODWS can be addressed through treatment.

No maximum acceptable concentrations (MAC) were exceeded in TW1-1 (step test), or TW1-1 and TW1-2 (pumping test).

#### 4.8 Impact Assessment

Approximately 1.2 to 9.8 m of overburden is present in the area based on a review of well records in the vicinity. At TW1 there was 8.7 m of overburden (consisting of hardpan) as documented by the driller. Sufficient depths of overburden exist to permit the construction of a septic system. Additional investigation will be required at the design stage to confirm suitability and infiltration capacity of overburden material at the Site.

The Site is hydrogeologically sensitive. Soil thickness within the vicinity of TW1 (consisting of sand and gravel and/or clay) varies from 1.2 to 9.8 m. It is not located in an area of known karst topography, and the Site is well-drained with no springs observed.

## 5.0 WATER TREATMENT

The use of disinfection such as an ultraviolet (UV) system, although not required, may be desired. Based on the observed water quality there should not be any hindrances to UV disinfection.

The Langelier Saturation Index (LSI) and Ryznar Stability Index (RSI) were calculated for TW1 (Appendix E). These results indicate that scale formation is possible, though not likely. This is to be expected in areas of carbonate bedrock.

For aesthetic reasons, water treatment such as softening may be desired. It is noted that softening with a standard salt (NaCl) softener will increase the sodium and chloride concentrations, relative to those noted in Table A3. Potassium salt softeners are therefore recommended.

If desired, elevated manganese and associated colour can be removed by ion exchange, filtration, or reverse osmosis.

#### 6.0 RECOMMENDATIONS

#### 6.1 Water Supply

#### Well Construction

- Any newly installed wells or a modification to the existing well situated on the proposed development area should have at least 6 m of casing and adhere to all other requirements of O.Reg. 903, as amended.
- Any newly installed test wells should be appropriately developed and tested prior to domestic use.

#### Well Yield

• Well yields in the order of 11.36 L/min appear to be sustainable based on the pump test data and calculations performed.

#### Water Quality and Treatment

- Operational Guidelines for Hardness was exceeded in TW1 during the step-test and in both samples for the pumping test (TW1-1 and TW1-2).
- No ODWS Maximum Acceptable Concentration (MAC) was exceeded in TW1 during the step-test or pumping test laboratory results; groundwater therefore meets all applicable health-related standards at this time.
- Sodium met the ODWS but concentrations exceeded the "warning level" 20 mg/L benchmark for individuals on sodium restricted diets. Future users should be notified. For treatment, water may be softened through sodium ion exchange.
- Sulphide exceeded aesthetic objective guidelines in all three water samples taken at TW1. Effective treatment options include adsorption, aeration, chlorination, filtration, greensand filtration, and oxidation.
- Colour only displayed exceedances in the first sample (TW1-1) taken during the pumping test, while levels dropped below detection measurements in the second sample (TW1-2).
- The water exceeded in turbidity above aesthetic objectives in all three samples taken (TW1-1 for step test, and TW1-1 and TW1-2 during pumping test). However, during the pumping test, turbidity measurements dropped from 15.2 NTU to 0.95 NTU.
- Hardness exceeded operational guidelines in all three samples taken (TW1-1 for step test, and TW1-1 and TW1-2 during pumping test).
- The water exceeded above aesthetic objectives in iron for the step-test sample (TW1-1) and first sample taken during the pumping test (TW1-1), but was within criteria for sample TW1-2.
- The first sample taken during the pumping test (TW1-1) had exceedances of manganese above aesthetic objectives, while manganese fell below detection levels within the second sample taken (TW1-2).
- If water softening is desired, the use of potassium salts (KCI) is recommended.

#### 6.2 Wastewater Treatment

#### Potential Septic Systems

- Based on the depth of overburden at TW1, as well as review of records for other wells within the vicinity, sufficient depths of overburden exist on-site to permit the construction of a septic system. Additional investigation will be required at the design stage to confirm suitability and infiltration capacity of overburden material at the site.
- As the property is greater than 1.0 hectares, and therefore has sufficient spatial area to reduce nitrate-nitrogen to an acceptable concentration and eliminate the risk of boundary limits which may be exceeded by individual systems (as outlined by Procedure D-5-4).
- Any septic systems must be constructed with all appropriate setbacks and stipulations as per Ontario Regulations and the Ontario Building Code.

#### Potential Lot Layout

• It is assumed that the proposed development is for a pre-engineered building; this assessment therefore does not address the potential for more than one water well user or septic system on the proposed lot.

#### 7.0 LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by McIntosh Perry Consulting Engineers Ltd. for Kris and Dana Norris of NCM Hydrovac Services. It is intended for the sole and exclusive use of Kris and Dana Norris of NCM Hydrovac Services, their affiliated companies and partners and their respective insurers, agents, employees, advisors, and reviewers. The report may not be relied upon by any other person or entity without the express written consent (Reliance Letter) of McIntosh Perry Consulting Engineers Ltd.

Any use which a third party makes of this report, or any reliance on decisions made based on it, without a reliance letter are the responsibility of such third parties. McIntosh Perry Consulting Engineers Ltd. accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The investigation undertaken by McIntosh Perry Consulting Engineers Ltd. with respect to this report and any conclusions or recommendations made in this report reflect McIntosh Perry Consulting Engineers Ltd. judgment based on the Site conditions observed at the time of the site inspection on the date(s) set out in this report and on information available at the time of the preparation of this report.

This report has been prepared for specific application to this site and it is based, in part, upon visual observation of the Site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the Site, substances addressed by the investigation may exist in areas of the Site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken.

If site conditions or applicable standards change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

We trust that this information is satisfactory for your present requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Respectfully submitted,

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#### 8.0 REFERENCES

OGS Earth, 2019. Ontario Ministry of Northern Development, Mines and Forestry, - Ontario Geological Survey Earth – for Google Earth. Overburden classification data for Eastern Ontario.

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## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



TABLES

# MCINTOSH PERRY

#### Table A1 Summary of Water Level Data Pumping Test - TW1 (NCM) - 25-Feb-2019

TOC Elevation (assumed) Static Water Level Static Water Elevation 95% Recovery 115 m AD (Above Datum) 2.825 m BTOC 112.175 m AD (Above Datum) 3.6218 m BTOC 111.3782 m AD (Above Datum)

Elapsed Time (minutes)	Elapsed Time (Recovery)	Water Level (m BTOC)	Water Level (m ASL)	Drawdown (m)	Notes
0		2.825	112.175	0	
0.25		3.381	111.619	0.556	
0.5		3.525	111.475	0.7	
0.75		3.801	111.199	0.976	
1		3.929	111.071	1.104	
1.5		4.281	110.719	1.456	
2		4.401	110.599	1.576	
2.5		4.523	110.477	1.698	
3		4.829	110.171	2.004	
3.5		5.375	109.625	2.55	
4		5.581	109.419	2.756	
4.5		5.771	109.229	2.946	
5		5.939	109.061	3.114	
5.5		6.125	108.875	3.3	
6		6.331	108.669	3.506	
6.5		6.435	108.565	3.61	
7		6.692	108.308	3.867	
7.5		6.8995	108.1005	4.0745	
8		7.18	107.82	4.355	
8.5		7.313	107.687	4.488	
9		7.49	107.51	4.665	
9.5		7.651	107.349	4.826	
10		7.881	107.119	5.056	
12		8.492	106.508	5.667	
14		9.131	105.869	6.306	
16		9.671	105.329	6.846	
18		10.165	104.835	7.34	
20		10.675	104.325	7.85	

#### Table A1 Summary of Water Level Data Pumping Test - TW1 (NCM) - 25-Feb-2019

TOC Elevation (assumed) Static Water Level Static Water Elevation 95% Recovery 115 m AD (Above Datum) 2.825 m BTOC 112.175 m AD (Above Datum) 3.6218 m BTOC 111.3782 m AD (Above Datum)

Elapsed Time (minutes)	Elapsed Time (Recovery)	Water Level (m BTOC)	Water Level (m ASL)	Drawdown (m)	Notes
25		11.778	103.222	8.953	Sampled TW1-1 at 25 minutes
30		12.655	102.345	9.83	
35		13.373	101.627	10.548	
40		13.495	101.505	10.67	
45		14.49	100.51	11.665	
50		15.061	99.939	12.236	
55		15.295	99.705	12.47	
60		15.624	99.376	12.799	
75		16.485	98.515	13.66	
90		17.041	97.959	14.216	
105		17.439	97.561	14.614	
120		17.711	97.289	14.886	
135		17.881	97.119	15.056	
150		18.035	96.965	15.21	
165		18.159	96.841	15.334	
180		18.25	96.75	15.425	
195		18.315	96.685	15.49	
210		18.403	96.597	15.578	
225		18.49	96.51	15.665	
240		18.551	96.449	15.726	
270		18.643	96.357	15.818	
300		18.723	96.277	15.898	
330		18.745	96.255	15.92	
360		18.693	96.307	15.868	
390		18.741	96.259	15.916	
420		18.735	96.265	15.91	
450		18.751	96.249	15.926	Sampled TW1-2 at 450 minutes
480		18.761	96.239	15.936	

#### Table A1 Summary of Water Level Data Pumping Test - TW1 (NCM) - 25-Feb-2019

TOC Elevation (assumed) Static Water Level Static Water Elevation 95% Recovery 115 m AD (Above Datum) 2.825 m BTOC 112.175 m AD (Above Datum) 3.6218 m BTOC 111.3782 m AD (Above Datum)

Elapsed Time (minutes)	Elapsed Time (Recovery)	Water Level (m BTOC)	Water Level (m ASL)	Drawdown (m)	Notes
480.25	0.25	18.705	96.295	15.88	Pump off at 8 hr 4 min elapsed (5:03 pm)
480.5	0.5	18.495	96.505	15.67	
480.75	0.75	18.381	96.619	15.556	
481	1	18.216	96.784	15.391	
481.5	1.5	17.912	97.088	15.087	
482	2	17.62	97.38	14.795	
482.5	2.5	17.329	97.671	14.504	
483	3	17.057	97.943	14.232	
483.5	3.5	16.761	98.239	13.936	
484	4	16.542	98.458	13.717	
484.5	4.5	16.264	98.736	13.439	
485	5	15.993	99.007	13.168	
485.5	5.5	15.762	99.238	12.937	
486	6	15.501	99.499	12.676	
486.5	6.5	15.269	99.731	12.444	
487	7	15.038	99.962	12.213	
487.5	7.5	14.805	100.195	11.98	
488	8	14.59	100.41	11.765	
488.5	8.5	14.369	100.631	11.544	
489	9	14.164	100.836	11.339	
489.5	9.5	13.935	101.065	11.11	
490	10	13.7	101.3	10.875	
492	12	12.96	102.04	10.135	

NOTES

TOC: Top of Casing m AD: metres above datum

m BTOC: metres below top of casing

#### Table A2 Summary of Field Data Pumping Test - TW1 - 25-Feb-2019

Time Elapsed (h:mm)	WL (mBTOC)	Temp (°C)	рН	TDS (ppm)	Conductivity (µS/cm)	Turbidity (NTU)	Flow (GPM)
0:25	11.778	9.2	7.57	293	585	-	-
0:40	13.485	7.9	8.14	302	610	-	-
0:55	15.295	7	7.83	348	703	-	3
1:30	17.04	5.5	7.91	380	764	-	-
1:45	17.44	4.5	7.51	380	743	-	-
2:00	17.71	6.2	8.07	362	723	15.2	-
2:15	17.88	7.2	6.13	327	650	13.5	3
2:30	18.04	-	-	-	-	11.5	-
2:45	18.16	6.7	7.95	304	602	10.73	-
3:00	18.25	8.5	7.95	290	580	8.4	-
3:15	18.32	5.9	8.32	268	539	7.49	-
3:30	18.40	6.4	8.08	262	525	5.82	-
3:45	18.49	6.6	7.94	267	522	3.82	-
4:00	18.55	6.7	7.93	265	523	3.03	-
4:15	-	4.7	8.05	272	546	2.73	3
4:30	18.65	7.3	7.97	141	281	2.36	-
4:45	-	5.1	8.22	43	89	2.12	-
5:00	18.72	5.6	8.09	65	128	1.91	-
5:15	-	5.2	7.98	36	64	1.75	-
5:30	18.75	4.8	8.04	65	126	0.98	-
5:45	-	4.7	8.24	55	107	0.93	-
6:00	18.70	5.1	8.13	135	264	1.15	3
6:15	-	6.1	7.98	110	242	1.07	-
6:30	18.74	6.9	7.89	199	401	1.16	-
6:45	-	6.1	7.94	251	508	1.05	-
7:00	18.74	5.6	7.97	254	513	0.9	-
7:15	-	6.3	7.91	264	534	0.91	-
7:30	18.75	5.5	7.8	226	453	1	-
7:45	-	5.0	7.81	94	184	0.84	-
8:00	18.76	4.5	7.84	264	529	0.95	-

Notes:

mBTOC metres below top of casing NTU Nephelometric Turbidity Unit

#### Table A3 Summary of Laboratory Results 200 Maple Creek Court, Ottawa, ON

		T		1	Step-test	Pumping test	Pumping test
Sample ID	Units	MDL	ODWSOG	Limit Type	TW1-1 1409420	TW1-1 1409421	TW1-2 1409422
Sample Date					30-Jan-19	25-Feb-19	25-Feb-19
		Microbio	logical Para	meters			
E. Coli	ct/100 mL	1	0	MAC	0	<1	<1
Fecal Coliforms	ct/100 mL	1	-		0	<1	<1
Total Coliforms	ct/100 mL	1	0	MAC	1	<1	<1
Heterotrophic Plate Count	ct/1 mL	10	-		19	390	<10
			Anions				
Chloride	mg/L	1	250	AO 250	64	68	50
Fluoride	mg/L	0.1	1.5	MAC 1.5	0.93	0.9	0.9
Nitrite as N	mg/L	0.05	1	MAC 1.0	<0.1	<0.05	<0.05
Nitrate as N	mg/L	0.1	10	MAC 10.0	<0.1	<0.1	<0.1
Sulphate	mg/L	1	500	AO 500	34	38	33
		Gen	eral Chemist	ry			
Alkalinity as CaCo3	mg/L	5	500	OG 500	219	211	217
Colour	TCU	2	5	AO 5	<2	42	5
Conductivity	uS/cm	5	-		642	654	583
рН		0.1	-	6.5-8.5	8.1	7.8	7.9
Sulphide	mg/L	0.02		A0 0.05	2.13	0.35	2.92
TDS	mg/L	10	500	AO 500	417	422	392
Turbidity	NTU	0.1	5	AO 5.0	17.9	24.8	9.9
Hardness	mg/L	-	-	OG 100	195	244	245
Ion Balance	mg/L	0.01	-		0.93		
		1	Metals			1	1
Calcium	mg/L	0.1	-		4.2	60.2	60.7
Iron	mg/L	0.1	0.3	AO 0.3	0.54	2.43	0.106
Potassium	mg/L	0.1	-		5	3.65	4.11
Magnesium	mg/L	0.2	-		22	22.7	22.8
Manganese	mg/L	0.005	0.05	AO 0.05	0.02	0.069	0.009
Sodium	mg/L	0.2	200	AO 200	55	54.3	43.6
		1	Inorganics				
DOC	mg/L	0.5	5	AO 5	1.7	1.6	1.1
N-NH3	mg/L	0.01	-		0.11	0.03	0.1
Phenols	mg/L	0.001	-		<0.001	<0.001	<0.001
Tannin & Lignin	mg/L	0.1	-		<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.1	-		0.2	<0.1	<0.1

Notes:

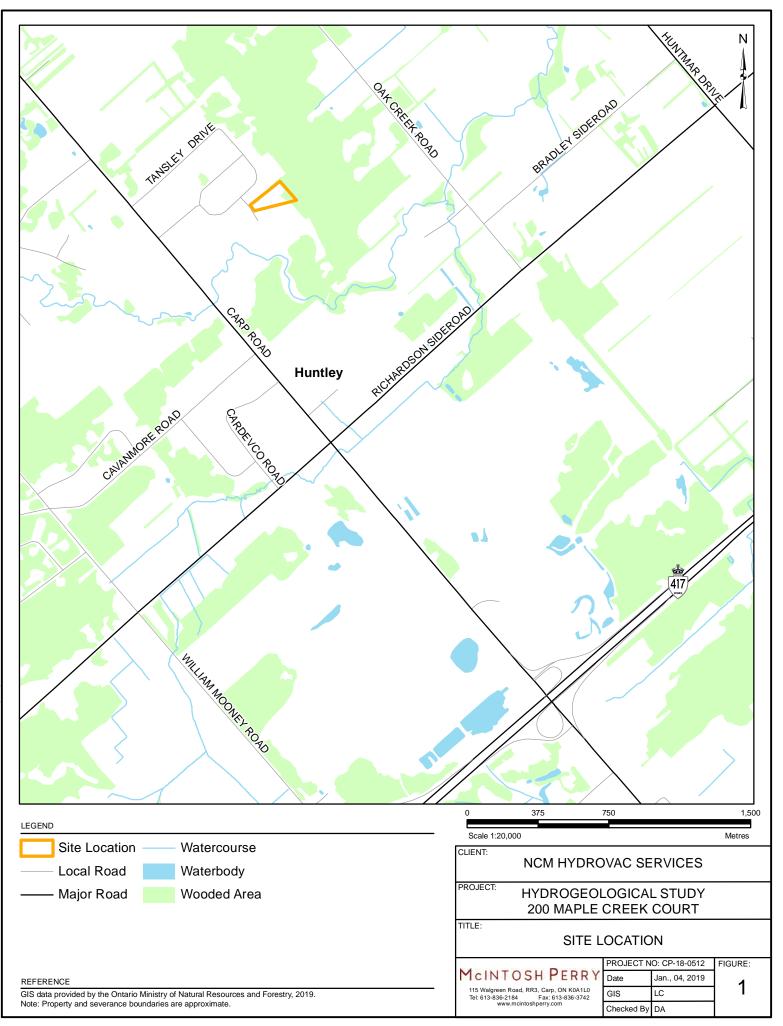
MDL	Method Detection Limit
ODWSOG	Ontario Drinking Water Standards, Objectives, and Guidelines (MOECC, 2003 rev. 2006; PIBs 4449 $\epsilon$
AO	Aesthetic Objective
MAC	Maximum Allowable Concentration (Health-Related Parameter)
OG	Operational Guideline
ND	Non detectable (below MDL)
mg/L	Milligrams per litre
TCU	True Colour Units
uS/cm	Microsemens per centimeter
NTU	Nephelometric Turbidity Units
ct/100 mL	Number of bacteria-forming colonies per 100 mL
	Exceedance of MAC Parameters
	Exceedance of AO/ODWS/OG Parameters

## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



FIGURES

MCINTOSH PERRY







Site Location

Unevaluated Wetland

REFERENCE GIS data provided by the Ontario Ministry of Natural Resources, 2019. Note: Property and severance boundaries are approximate.

0	12.5	25	50
Coole	1.1 000		Matroo

Scale 1:1,000 Metres

CLIENT:

#### NCM HYDROVAC SERVICES

PROJECT: HYDROGEOLOGICAL STUDY 200 MAPLE CREEK COURT

TITLE:

#### SITE LAYOUT

	PROJECT N	O: CP-18-0512	FIGURE:
MCINTOSH PERRY	Date	Mar., 01, 2019	2
Tel: 613-836-2184 Fax: 613-836-3742	GIS	LC	
www.mcintoshperry.com	Checked By	RL	



#### LEGEND

#### SymbollD

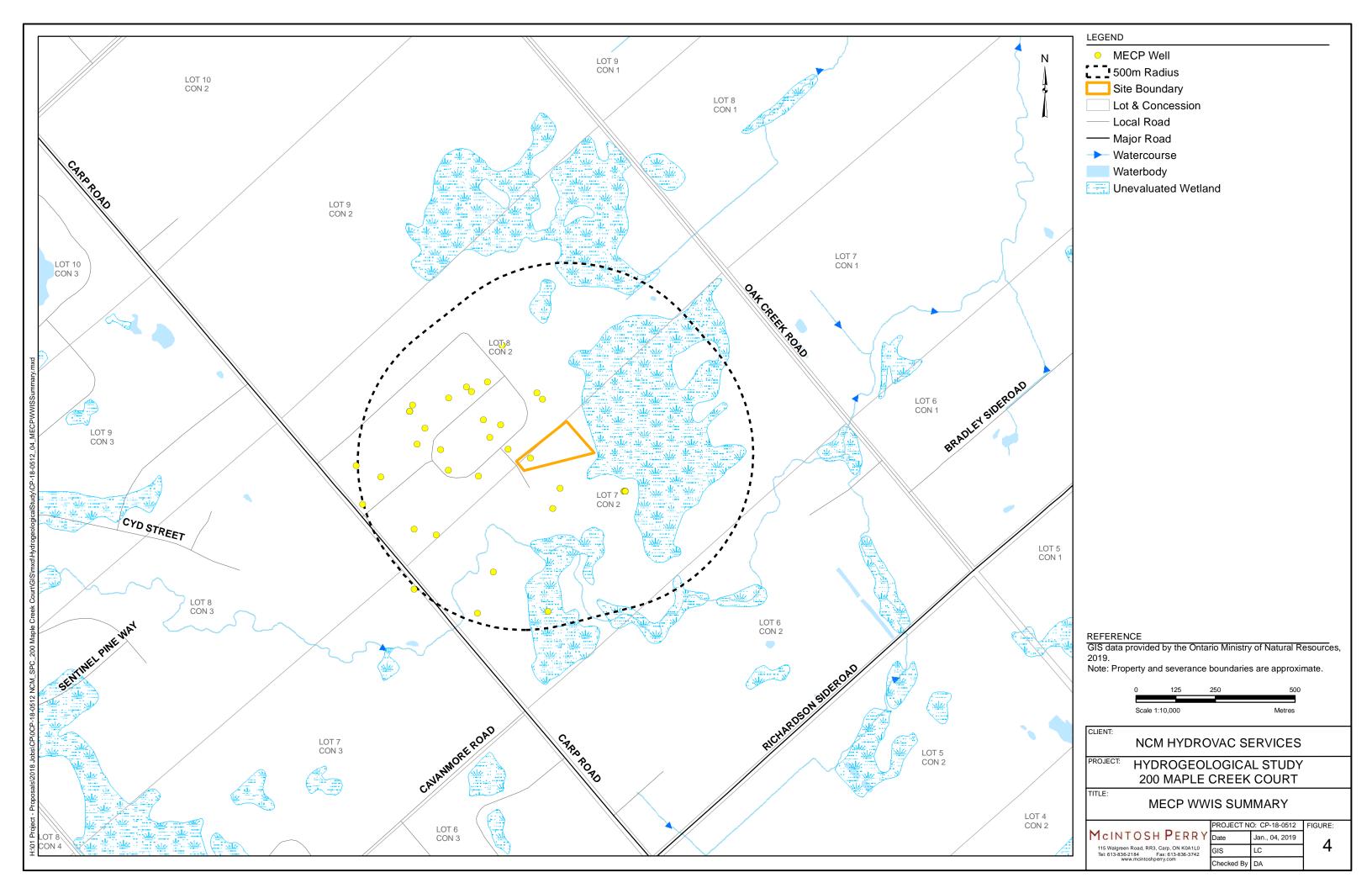
Site Location

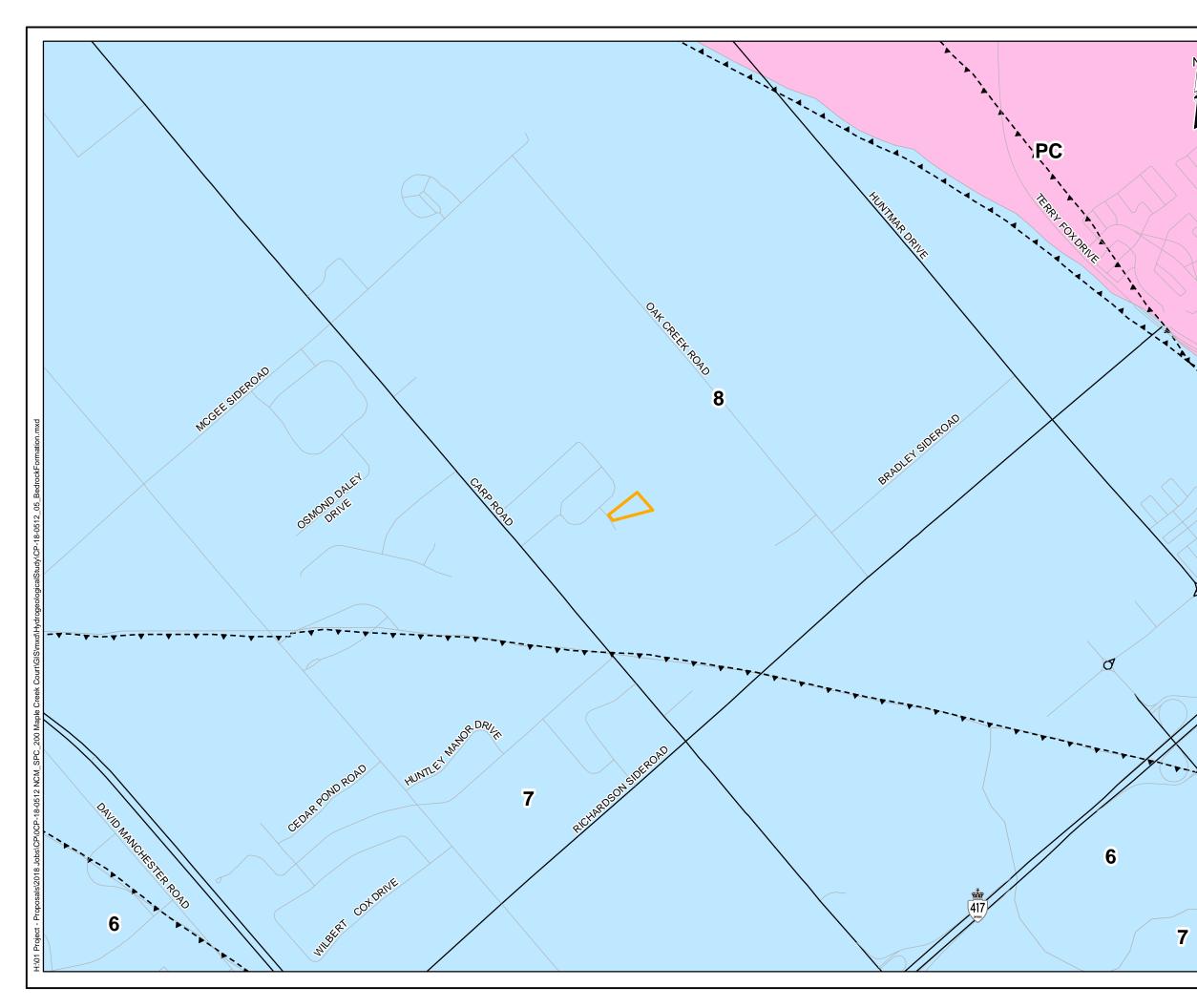
- Property with existing well to be pump tested
- Proposed properties to be severed
- Contour \_\_\_\_
- Unevaluated Wetland

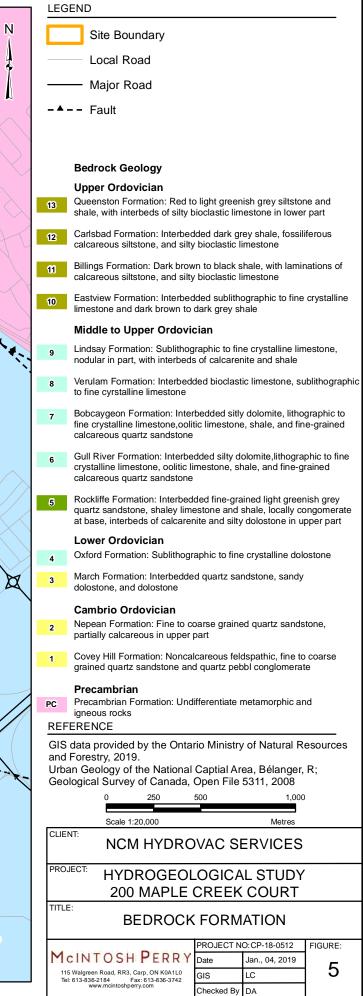
REFERENCE GIS data provided by the Ontario Ministry of Natural Resources, 2019. Note: Property and severance boundaries are approximate.

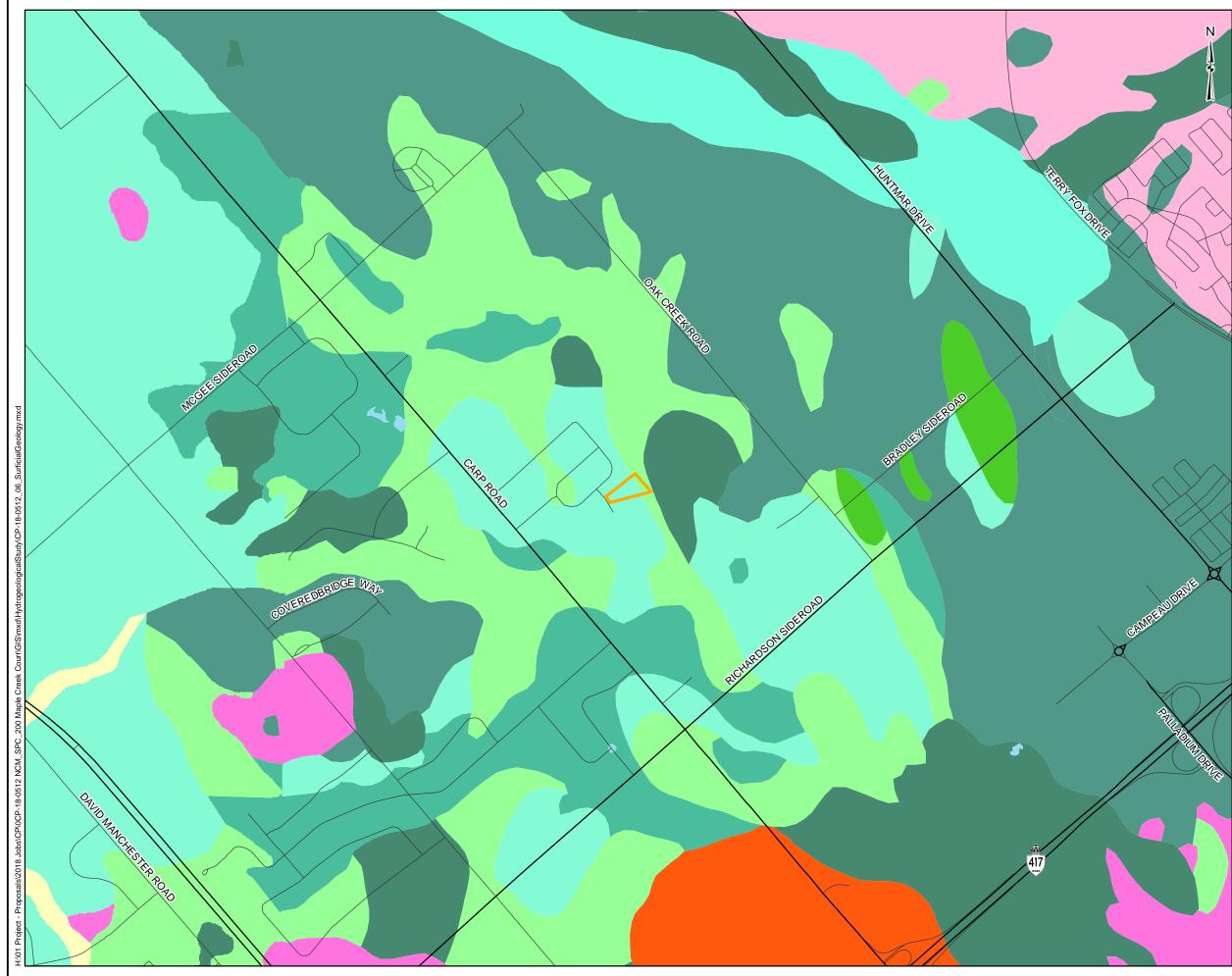
	0	75		150	300			
	Scale 1:	6,000			Metres			
CLIENT:	NCM HYDROVAC SERVICES							
PROJECT:	ROJECT: HYDROGEOLOGICAL STUDY 200 MAPLE CREEK COURT							
PROJECT NO: CP-18-0512 FIGURE:								
MCINTOSH PERRY			Date	Mar., 01, 2019	2			
115 Walgreen Road, RR3, Carp, ON K0A1L0 Tel: 613-836-2184 Fax: 613-836-3742			GIS	LC	3			
ww	www.mcintoshperry.com			Checked By	RI			

Checked By RL









N
$\sim$
AUDRIVE



- Site Boundary
- Local Road
- Major Road

#### Surficial geology Description

- Organic Deposits
- Sand Dunes
- Floodplains, sand, silt, clay
- Fluvial Terraces, sand, silt
- **Reworked Marine Sediments**
- Beach Formations
- Sand, reworked glaciofluvial
- Deltaic and Estuarian Deposits
- Marine Deposits, clay, silt
- **Erosional Terraces**
- Glaciofluvial Deposits
- Till, plain
- Till, drumlinized
- Till, hummocky to rolling
- Paleozoic Bedrock
- Precambrian Bedrock
- Water

#### REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2019. Surficial Geology of Southern Ontario provided by the Ontario Geological Survey, Miscellaneous Release - Data 128 - Revised

0	250	500	1,000
Scale <sup>-</sup>	1:20,000		Metres

CLIENT: NCM HYDROVAC SERVICES

## PROJECT:

#### HYDROGEOLOGICAL STUDY 200 MAPLE CREEK COURT

TITLE:

#### SURFICIAL GEOLOGY

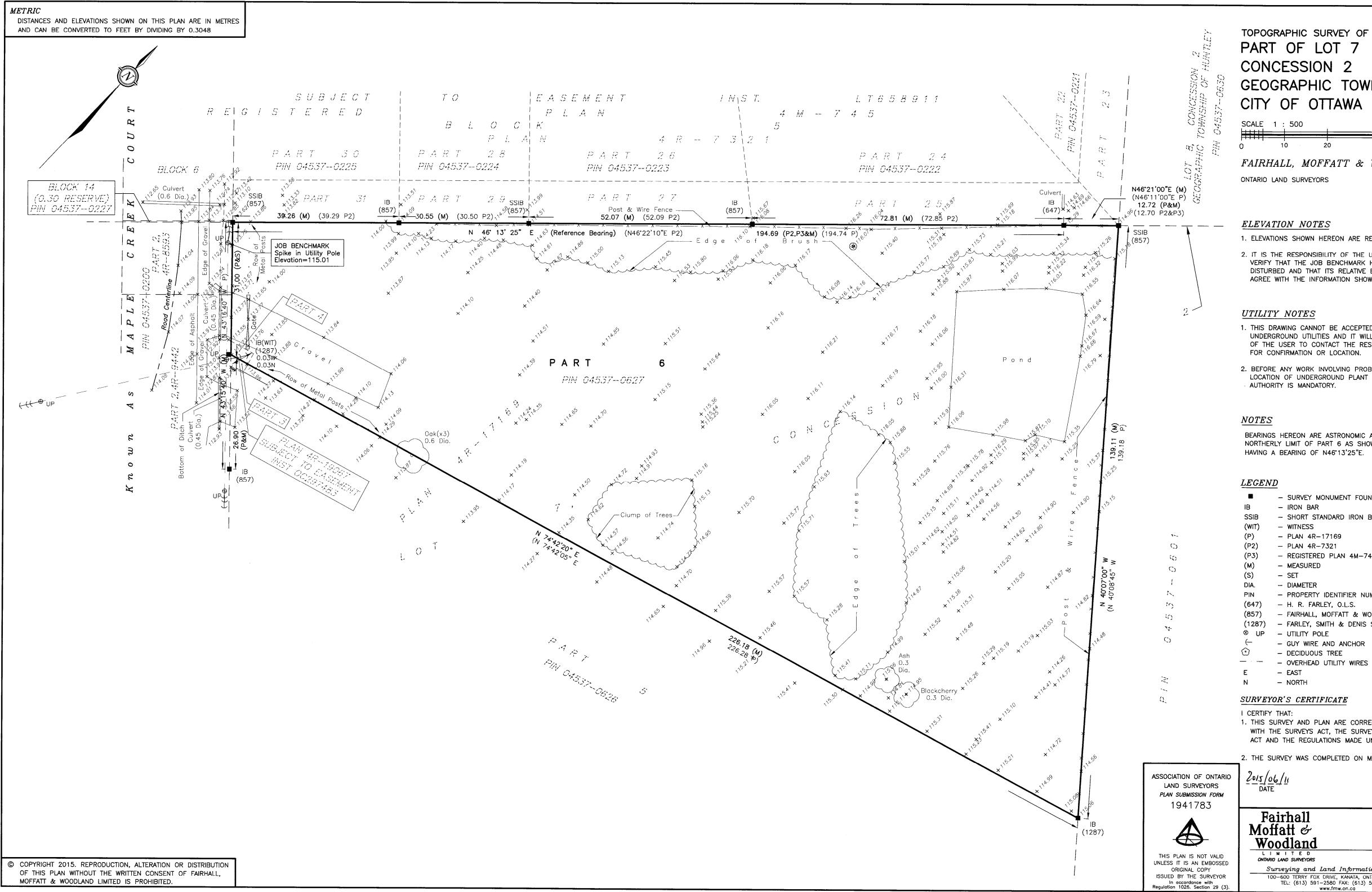
	PROJECT NO: CP-18-0512		FIGURE:
MCINTOSH PERRY	Date	Jan., 04, 2019	6
115 Walgreen Road, RR3, Carp, ON K0A1L0 Tel: 613-836-2184 Fax: 613-836-3742	GIS	LC	0
www.mcintoshperry.com	Checked By	DA	

## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX A SURVEY PLAN

MCINTOSH PERRY



# GEOGRAPHIC TOWNSHIP OF HUNTLEY

20

50 metres

FAIRHALL, MOFFATT & WOODLAND LIMITED

1. ELEVATIONS SHOWN HEREON ARE REFERRED TO GEODETIC DATUM.

2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON THIS DRAWING.

1. THIS DRAWING CANNOT BE ACCEPTED AS ACKNOWLEDGING ANY UNDERGROUND UTILITIES AND IT WILL BE THE RESPONSIBILITY OF THE USER TO CONTACT THE RESPECTIVE UTILITY AUTHORITIES

2. BEFORE ANY WORK INVOLVING PROBING, EXCAVATING, ETC., A FIELD LOCATION OF UNDERGROUND PLANT BY THE PERTINENT UTILITY

BEARINGS HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE NORTHERLY LIMIT OF PART 6 AS SHOWN ON PLAN 4R-17169

- SURVEY MONUMENT FOUND

- SHORT STANDARD IRON BAR

– REGISTERED PLAN 4M–745

- PROPERTY IDENTIFIER NUMBER - FAIRHALL, MOFFATT & WOODLAND LTD., O.L.S. (1287) - FARLEY, SMITH & DENIS SURVEYING LTD., O.L.S. - GUY WIRE AND ANCHOR

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT, THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM. 2. THE SURVEY WAS COMPLETED ON MAY 29, 2015. In 

ONTARIO LAND SURVEYOR			
	JOB No. V 2 1 8 0 0		
	E 345850, N 5018434		
OTTAWA Land Information Services	REFERENCE No. 133 – 2 – HUNTLEY		
X DRIVE, KANATA, ONTARIO K2L 4B6 1-2580 FAX: (613) 591-1495	s:\JOBS\V21800\DWGS 2015-06-11 tp218v.dwg (KB)		

## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX B MECP WELL RECORDS

MCINTOSH PERRY

E	) Ontario	Ministry of the Environment	Well Tee Number (	;265	mber below)	Well Record Regulation 903 Ontario Water Resources Act
Ins	tructions for Complet	ting Form	Aos	5265	5	page of
0 0 0	All Sections must be c	ompleted in full to avo ompleting this applica	oid delays in processing tion can be directed to	. Further ir	nstructions and	ease retain for future reference. I explanations are available on the back of this form. lesk (Toll Free) at 1-888-396-9355.
0	Please print clearly in b					Ministry Use Only

ŧ

Address of Well Location (County,	/District/Municipality)		wnship	Carlot	Lot	Concession	1
RR#/Street Number/Name	Corleton		City/Town/Vi		SV Site/Compa	urtment/Block/Tract	Ba at-A-
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General Colour Most common	· · · · · · · · · · · · · · · · · · ·	<b>/</b>		Genera	I Description	Depth	Metres
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grey	pana					<u> </u>	001
Gley	Linestore					8,84	13,13
						·	
			*****				
Hole Diameter	Con	struction Reco	ord		Tes	t of Well Yield	1
Depth Metres Diameter	Inside	Wall	Depth	Metres	Pumping test method		Recovery
From To Centimetres	diam Material	thickness		1	C.00 0	Time Water Level Time	Water Level
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		Casing			(metres) 0, 0	Level 🛪	20!9
	Steel Fibreglass				Pumping rate	14,721	16.86
Water Record	Plastic Concrete	$\circ$	,48	10.67	Duration of pumping	26.09 2	15,55
Water Record Water found at Metres Kind of Water	Galvanized			10.	hrs + min	- 0.01 2	محصيد مستنى ممينة ع
m Fresher Sulphur					Final water level and	3 7.00 3	14.60
Gas 🗌 Saity Minerals	Galvanized				of pumping metres Recommended pump	0.4	A.m
Other:	Steel Fibreglass				type.	4 8,14 4	13.72
Gas Salty Minerals	Plastic Concrete				Shallow Deep Recommended pump	5 8,94 5	13,00
Other:	Galvanized				deptieres		
m Fresh Sulphur		Screen			Recommended pump	10 211 10	10,39
Gas Salty Minerals	Outside Steel Fibreglass	Slot No.			(litret/min) If flowing give rate -	15 14 30 15 20 15 90 20	8,63
After test of well yield, water was	Plastic Concrete				(litres/min)	25 17,18 25	6.43
Ochaland stanght tree 05	Galvanized				If pumping discontin- ued, give reason	30 18,11 30	5,67
Other aperts TED	No (	Casing or Scre				40 19 22 40	4-71
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Irrigation Municipa		air conditioning		Audit No.	65135 Date	e Well Completed	>MMr OD7
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	insufficient supply			package delivered			M39
Test Hole Abandoned, p				·	Miniotry Llos	Only	
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Business Address (street name, numbe	er, city etc.)	- Ka		Date Received		e of Inspection YYYY	MM DD
Name of Well Technician (last name, f	rst name) W	ell Technician's Li	icence No.	SEP 1 Remarks	7 2007   Wel	Record Number	
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Signature of Technician/Contractor	Da	te Submitted	PMAR		•		
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	Ministry of the Environment			Ontario W	/ater Resource		OPC
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COUNTY OR DIST	2. CHECK 🛛 CORREC	T BOX WHERE APPLICABLE 1 2 TOWNSHIP, BOROUGH, CITY, TOWN, VIL			10 IN SIDO	15	
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Grac	ey Holdings Ltd.	P.O. Box 383		Ontario		DATE COMPLETED	05 v91
21			RC. ELEVATION	#c		, , , , , , , , , , , , , , , , , , ,	
	LOG	G OF OVERBURDEN AND BI	EDROCK MATERI	30 ALS (SEE INS	TRUCTIONS)		
GENERAL COL	OUR MOST COMNON NATERIAL	OTHER MATERIALS		GENERAL	DESCRIPTION	FROM	EPTH - FEET
Brow	n Sandy Clay	Boulders		Dry			0 8
Gray	Hardpan	Boulders		Pack	ed		8 28
Gray	Linestone			Medi	m Soft	2	8 298
WATER FOUND AT - FEET 10-13 289 13-18 20-23 25-28 30-33	KIND OF WATER		DLE RECORD PROM TO 0 30 <sup>3-16</sup> 20-23 30 298 27-30		PLUGGING &		DP 41-44 30 FEET
71 PUMPING TEST		11-14 DURATION OF PUMPING	7-18	LOC	CATION OF	WELL	
STATIC LEVEL SU U SU SU SU SU SU SU SU SU SU SU SU S	WATER LEVEL END OF PUMPING 9-21 22-24 IS MINUTES 3 26-28 FEET 200 FEET 200 FEET 38-41 PUMP INTARE SET A GPM RECOMMENDED PUMP TYPE RECOMMENDED PUMP	GPM         HOURS         HOURS           IS DURING         1         PUMPING           20         2         RECOVERY           30 MINUTES         45 MINUTES         60 MINUT           2001         2000 FEET         2000           T         WATER AT END OF TEST         2000           43-45         RECOMMENDED         41	MINS IN DIA . LOT L ES 5-37 02	AGRAM BELOW S	SHOW DISTANCES OF TE NORTH BY ARROW		19'
FINAL STATUS OF WELI WATER USE METHOD	3       I FEST HOLE         4       RECHARGE WELL         53-36       1         2       STOCK         3       I RRIGATION         4       INDUSTRIAL         0       OTHER					1-17	
	ION 4 ROTARY (REVERSE) A D ROTARY (AIR) 4 ROTARY (AIR) 5 R AIR PERCUSSION	L) 7 [] DIAMOND a [] JETTING b DRIVING c DIGGING [] OTHER	DRILLERS REMARK		2.*5	10	0071
ADDRESS ADDRESS NAME OF M	LL CONTRACTOR al Water Supply Ltd al reStittsville, On al rechnician/contractor	SUBMISSION DATE	SOURCE	58 CONTRA TION	53-62 DATE R 5558	A A A A	91
	TRY OF THE ENVIRONM	bo _5 vr 9				E 55	

Well Tag No. " Well Record • Ontario A117486 Ministry of the Environment Regulation 903 Ontario Water Resources Act of 🗌 Imperial Page Measurements recorded in: K Metric Well Owner's Information Last Name Dog Bar CNTACIO IM First Name E-mail Address Well Constructed by Well Owner Mailing Address Province area code o. *(inc*. REEME DIE Well Location Concession -7 Address of Well Location (Street Number(Name) "HUNTLEY WEST CARLED 8 County/District/Municipality Province Village KUA ILO Ontario UTM Coordinates | Zo Municipal Plan and Sublot Number RETS SUBDUISION 21 FAD +321 NAD 8 3 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) Depth (m/ft) General Colour Most Common Material Other Materials General Description From Τc SANDYCHA RONSA an CHI-SAN, Der 7711 SHALE 5123 **Results of Well Yield Testing** Annular Space After test of well yield, water was: Depth Set at (m/ft) Type of Sealant Used Volume Placed Draw Down Recovery Clear and sand free (Material and Type) (m3/ft3) Time Water Level Time Water Lev (min) Other, specify (m/ît) (m/ft) (min) If pumping discontinued, give reason: 83 Static Level 1 1 Pump intake set at m/ft) 2 2 (AO 3 3 Well Use Method of Construction pm) Commercial Municipal UUg DIAM 4 4 Cable Tool Rotary (Conventional) Diamond Public Not used uration of pumping Jetting Domestic Dewatering C 5 5 min Rotary (Reverse) Driving Livestock Test Hole Monitoring et pumping (m/ti) Final y Boring Digging Irrigation Cooling & Air Conditioning level enc 10 10 Industrial 65/m Other, specify Other, specify 15 15 N/R **Construction Record - Casing** Status of Well 20 20 Open Hole OR Material Wall Thicknes *(cm/in)* Depth (m/ft) Water Supply Inside nded pu m/ft (Galvanized, Fibreglass, Concrete, Plastic, Steel) Diamete (cm/in) Replacement Well to 2m 25 25 То From Test Hole 0.46 30 301 A 589 🗌 Recharge Well 30/ BM Dewatering Well 40 40 Observation and/or Monitoring Hole 50 50 Alteration ed? (Construction) 60 Å 60 Abandoned, 🖌 Yes No No Insufficient Supply Map of Well Location Construction Record - Screen Abandoned, Poor Water Quality Depth (m/ft) ase provide a map below following instructions on the back. Outside Material (Plastic, Galvanized, Steel) Diameter Slot No Abandoned, other, From (cm/in) То specify KEBPEL 7 Other, specify Hole Diameter Water Details Depth (m/ft) Water found at Depth Kind of Water: Fresh Untested Diameter CADDA IIV /207924 (cm/in) alle F(m/ft) □Gas 38 D.C (); found at Depth Kind of Water: Fresh Unite (m/ft) Gas Control of Water: To The State Л 4 6 found at Depth Kind of Water: resh Unteste (m/ft) Gas Other, specify Well Contractor and Well Technician Information WILLING IN pents PTUE ACHES Well owner's information package delivered Ministry Use Only Date Audit No z149063 🗶 Yes MAY 2 9 2012 No No

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Print only in spaces provided.

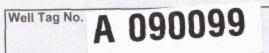
🕅 Ontario

# The Ontario Water Resources Act WATER WELL RECORD

Print only in space Mark correct box	ces provided. with a checkmark, where application of the second	able.	11 1 2	1	5336	699	Municipal 150		Con. CONLIL	22 23 2
County or District	l	Townshi	p/Borough/City	/Town/Villa	je		Con block	tract surv	vey, etc. L	ot 25-27
Ottava (	Carleton	W	est Carl	eton ·	- Huntl	.ey	2	,		8
		Address 157	abbevhi 1	1 Dr.	Kanata	Ontario	6 K2L 2E9	Date completed	<sup>d</sup> 17 <sub>day</sub> 03,	***53
21	U		Northing			evation RC	Basin Code	[i	iii	iv
2	M IO		18	24			31			4
Concernt colours			N AND BEDI	ROCK MA	TERIALS				Dept	th - feet
General colour	Most common material					Genera	I description		From	To
Brown	Soil	Sa	nd & Gra	vel					0	13
Gray	Limestone								13	48
•										
					Ī					
										1
	<u> </u>				-					
31	<u> </u>	<u>I</u>				1 1 1				<u> </u>
32	<u></u>				·     ,	┶╍┶╍┶╌┙┖╍┵╍┶╴ ╸┃╺╻┃┃╺╴┑		┙╾┵┙└╌┷┈ ╵╴╵╵╵	<u></u>	. I , I , I ,
10 14			PEN HOLE				opening 31	1-33 Diamete	er 34-38 Len	<u></u>
Water found at - feet	Kind of water diam	Material	Wall thickness		n - feet To	Z (Slot No	.)		inches	feet
10-13 1	Fresh 3 Sulphur 14	4 1 🕱 Steel 12	inches •188	+ 1.	<b>211</b> -16	X (Slot No UU Waterial	and type		Depth at top	of screen 30
2.3-40 N	Salty 6 Gas	2 Galvanized 3 Concrete 4 Open hole								feet
2 [	□ Salty 6 □ Gas 17-1	5 🗆 Plastic			20-23	61	PLUGGING	& SEALIN		
	☐ Fresh <sup>3</sup> ☐ Sulphur <sup>24</sup> 4 ☐ Minerals ☐ Salty <sub>6</sub> ☐ Gas <b>6</b>	2 Galvanized 3 Concrete		23	48	Depth set a	Motor	rial and type (	Cement grout, b	
	Fresh 3 Sulphur 29	4 🕱 Open hole 5 🗌 Plastic 5 1 🔲 Steel 26		21		From 21	14-17		Cement	
20.22		5 1 Steel 26 2 Galvanized 3 Concrete			27-30	<b>61</b> 18-21	22-25	<u>uleu -</u>	Hole P	
	☐ Fresh 3 ☐ Sulphur 34 60 ☐ Fresh 4 ☐ Minerals ☐ Salty 6 ☐ Gas	4 Open hole				26-29	.30-33 80			
Pumping test m	nethod 10 Pumping rate 1	-14 Duration of pump	bing							
71 1 🔀 Pump 2			17-18 Mins		In diagra		CATION OF V w distances of		road and lo	t line.
	end of pumping Water levels during		2 C Recovery 60 minutes 35-37	1		north by arrow			<++-	. 1
		20	25		<b>`</b>	1			NO	
11'3#       If flowing give raise	20.41	Water at end of te			$\mathbf{i}$					
Recommended p	+: ···	feet Clear 3-45 Recommended	Cloudy 46-49		Reis	130101	45'			
🗆 Shallow	Deep pump setting 30	pump rate feet	5 GPM		12					
50-53	S OF WELL 54									
<sup>1</sup> Water sup <sup>2</sup> Observatio	5 🗆 Abandoned, insufficier						Y	Kar	reis L'Dos	-
<ul> <li><sup>3</sup>          Test hole         <ul> <li><sup>4</sup>              Recharge</li> </ul> </li> </ul>	7 Abandoned (Other)							6	2e <sup>5</sup> ~	
WATER USE	55-56								N. N.S	`
1 🕱 Domestic 2 🗋 Stock	6 🗌 Municipal	9 🗋 Not us 10 🔲 Other						~	500	
з 🗌 Irrigation 4 🗌 Industrial	<ul> <li>Public supply</li> <li>Cooling &amp; air condition</li> </ul>	ling					1			
METHOD OF C										
<ol> <li>Cable tool</li> <li>Rotary (co</li> </ol>	onventional) 6 🗍 Boring	9 Driving 10 Diggin	g							
<sup>3</sup> Rotary (re 4 X Rotary (air 10 X Rotary (re)		11 🗌 Other	-			0.0	*5		250	585
Nome -6141-11 C		Т му-и о т	odo 1 : **		•	Es IControtter		59-62 Date re		
Name of Well Contra	. Water Supply Ltd.	Well Contract	or's Licence No.			58 Contractor		59-62 Date re	-	63-68 B0
Address		· · ·		""	e of inspection	·	Inspector			
P.O. BO Name of Well Techr	x 490 Stittsville	Dintario K23 Well Technici	5 <b>1A6</b> an's Licence No.		narks					
S. MIII	er A	<b>TOO97</b>							CSS	<b>5.ES3</b>
Signature of Technik	1 1	Submission d	03 yr 03	NW						

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario Ministry of the Environment



Measurements recorded in: X Metric Imperial

Address of Well Location (Street Number Name)	-	Township HUNTA	er "	<sup>ot</sup> 8	Conces	z	
County/District/Municipality OTTAWA. City/Town/Village			Province Postal Code Ontario			FILO	
UTM Coordinates Zone, Easting 3202 Nothing	7210	Municipal Plan and Subl	ot Number	45	Other	1-1-1	
NAD 8 3 12 972 JOI Overburden and Bedrock Materials/Abandonmen	t Sealing Red	cord (see instructions on the	e back of this form)	Mittelli II	nagautu	Den	th ( <i>m/ft</i> )
General Colour Most Common Material		ther Materials	General	Description	1	From	To 177
BROWN SATINDI GAM	SILT.					111	610
Carly Juliston).	34 1h	CRAVEL BOX	WARK			610	137
GRET WINESTENE	SHALL	E HANCE DEL	chuchs.			732	RTA
GREI WITCH SILL	Silve						pin.
Depth Set at (m/ft) Type of Sealant U		Volume Placed	Res After test of well yield, wat	the second s	Draw Dow		lecovery
From To (Material and Type		(m³/ft³)	Clear and sand free		Time Water L (min) (m/	evel Time	and an other designment of the local data and the l
Odo ADt Cement gost.		0.96	If pumping discontinued,	give reason	Static 11	5	(invig
			NA.		1	1	19.93
	- 100 C		Pump intake set at (m/l)	1-1	2 2.14	2 2	10.95
			Pumping rate (Vmin / GP	101	3 247	3	Rich
Method of Construction	Well Com	A CONTRACTOR OF	23 pm 6	m)	4 41	5 4	17.38
Rotary (Conventional) Jetting Domestic	Munie	cipal Dewatering	Duration of pumping hrs + O min	+6hr	5 74	5 5	1660
Rotary (Reverse)     Driving     Livestock     Boring     Digging     Irrigation		Hole I Monitoring	Final water level end of p	A Contraction	10 8.4	L 10	13.76
Other, specify Other, sp			If flowing give ate (I/min	CON /	15 91	3 15	10.50
Construction Record - Casing	auna <mark>ntenne</mark>	Status of Well	NIA.	, 0, 1,,,	20 11.4	20	815
Diameter (Galvanized, Fibreglass, Thickness	Depth ( <i>m/ft</i> ) om To	Water Supply	Recommended pump d	epth (m/ft)	25 131	7. 25	630
(cm/in) Concrete, Plastic, Steel) (cm/in) Pro	11. 917	Test Hole     Recharge Well	Recommended pump a	ate	30 114	3 30	ATR
DID SKULADOL CITO TO	14 1000	Dewatering Well     Observation and/or	23 pm co	yon)	40 119	5 40	2.66
		Monitoring Hole	Well production (Vmin / s	u M	50 A.C	9 50	1,55
		(Construction)	Disinfected?		60 20 8	5 60	0,96
Construction Record - Screen	NA	Abandoned, Poor		Map of V	Vell Location		
Outside Material Slot No.	Depth (m/ft)	Water Quality Abandoned, other,	Please provide a map be	low followin	g instructions on	the back.	
(cm/in) (Fielsuc, Gaivanized, Steeli) Fr	rom To	specify					Γ.
		Other, specify					٨
				_			
Water Details Water found at Depth Kind of Water: Fresh Unt		Hole Diameter	R	lī	1.0	2	
Water found at Depth Kind of Water: Fresh Unt	From	1 01 A B.S.	&		week	1	1
(m/ft) Gas Other, specify		2000 mars	1 A		38 Tansley	1	
Water found at Depth Kind of Water: Fresh Unt (m/ft) Gas Other, specify	tested			1	7	T	-1
Well Contractor and Well Tech							
Business Name of Well Contractor		Well Contractor's Licence No	0				
Business Address (Street Number(Name)	5AQ	Parina Man	Comments:				
Province Postal Cade Business E-ma	ail Address	1 a hall					
But KOA2XO Stent	Manth	y Collent	information	kage Delive	Audit N	inistry Us	e Only
1413264-56TZ STAND	POTE	e, Eirst Name)	delivered Date Wor	K Complete	P		3676
Well Technician's Honce-No. Signature Prochaman and	Contractor	201005/2	No 201	DA	DI	IN 08	2010
0506E (12/2007)		Ministry's Cop	y	The second se	© Qu	ieen's Printer	for Ontario, 2007

Ontario Ministry of the Enviro	f Well Tag A	036014	r below) Regulation 903 Ont	Well Record
Instructions for Completing Form	A02	6014		page of
<ul> <li>For use in the Province of Ontario</li> <li>All Sections must be completed in</li> <li>Questions regarding completing thi</li> <li>All metre measurements shall be</li> <li>Please print clearly in blue or black</li> </ul>	o only. This document is a p full to avoid delays in proce is application can be directe a reported to 1/10 <sup>th</sup> of a me	permanent <b>legal</b> docu essing. Further instruct	tions and symlemetic and the second systems	erence. e on the back of this form. 235-6203.
Well Owner's Information and Loca	3		CON	
GPS Reading NAD Zoop Fastin 8 3 B 4 Log of Overburden and Bedrock Ma	Northing 3064 Sol 733 aterials (see instructions	P Unit Make/Model	Mode of Operation: Undifferentiat	
General Colour Most common material	Other Materials		General Description	Depth Metres From To
SREY LIME	KAUEL STONE STONE SA	ND STON	EMIXED	0 1,22 1,22 3657 36.57 45.72
Hole Diameter	Construction R	ecord	To add adda	
Depth Metres Diameter Inside	Wall			w Down Recovery
From To Centimetres diam centimetres	Material thickness centimetre			Water Level Time Water Level Metres min Metres
	Casing		Pump interes set at Static (metres)	1,59 29,94
88	Steel Fibreglass		Pumping rate - 1	4.23 1 26.44
Water Record	Galvanized	50 7,3	Duration of pumping 2	566 2 23.07
			Final water level end 3	7.38 3 23.14
Gas Safty Minurals	Galvanized Steel Fibreglass		Recommended pump 4	8,89 4 22 25
	Plastic Concrete		Recommended pump 5	0.00 5 21.68
Other:	Galvanized		Recommended pump 10	459 10 1770
Gas Salty Minerals Outside diam	Steel Fibreglass Slot No.		rate. (litresimh) 15 If flowing give rate - 20	7 82 15 4.80
After test of well yield, water was	_ Plastic _ Concrete Galvanized		(litres/mih) 25	
Other, specify	No Casing or S		ued, give reason. 40	24-30 30 0.65
	Popen hole	671 45		27 91 50 7 59 7 9 60 5 27
Plugging and Sealing Record Depth set at - Metres Material and type (bentonite slip		Abandonment	Location of Wel am below show distances of well from road	
From To MERTCEM	(0		north by arrow. # 1325 230 # 1325 230	
			# pel	- IN OTR
Method of C	onstruction			TANSLEYDK
Cable Tool Rotary (conventional)	Diamond Jetting Driving	Digging Other	R	
Water XDomestic Industrial Stock Commercial	r <b>Use</b> Public Supply Not used -	Other	考 \	
Irrigation Irrigation Final State Water Supply Recharge well	Unfinished Aba	ndoned, (Other) Was the	2 3U843 e well owner's information Date Delive	2005 1027
Observation well     Abandoned, insufficient su     Test Hole     Abandoned, poor quality	Replacement well	package	e delivered?	2005 1130
Well Contractor/Tecl Name of Well Contractor Business Address (street name, number, city etc.)	Well Gentractor	's Licence No. Data Sc Data Sc Date Re		
Name of Well Technician (last barne, first sime)	WNDN Well Technician	MOLO UC		
Signaturg/of Achinician/Contractor X 0506E (09/03) Contractor	ractor's Copy Ministry's Co	py Well Owner's Cor	by  Cette formule	est disponible en frar

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Ministry of the				Water Resourc		
Ontario Environment	VVA			ELL	REC	URD
	ECT BOX WHERE APPLICABLE	15265	82			
COUNTY OR DISTRICT	TOWNSHIP. BOROUGH. CITY, TOWN, VILLA		CON	BLOCK, TRACT, SURVEY	ETC	LOT 23-27
		-	I	<u>k</u>	DATE COMPLETED	44-53 9 yr 92
	<u>) Zephyr Av</u>	<u>₽. Ottawaa</u> O RC. ELEVATION	ntario	K2B 57.7		YR. 32
	I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII					
GENERAL COLOUR MOST COMNON MATERIAL	OTHER MATERIALS			AL DESCRIPTION	FROM	DEPTH - FEET
Brown Sandy Clay	Stones					0 5
Gray Sand	Boulders					5 16
Gray Limestone						16 250
				·····		
		11,,,11,1			<u>_</u>	
					┘└┘╷╷╷╷╷╷╷	
41 WATER RECORD	51 CASING & OPEN HOL		SIZE (SLOT	OF OPENING 31- NO )	SS DIAMETER S4-3	75 80 38 LENGTH 39-40
AT - FEET KIND OF WATER	INSIDE WALL DIAM MATERIAL THICKNESS INCHES INCHES	DEPTH - FEET FROM TO		IAL AND TYPE	DEPTH TO T OF SCREEN	TOP 41-44 10
FRESH 3 USULPHUR 19	6 1/4 2 agalvanized 3. Concrete 4. Concrete	0 21				FEET
243.23 NOTERTISSTELD LPHUR 24	5 D PLASTIC 17-18 1 D STEEL 19	20-23		ET AT FEET		CEMENT GROUT
2 SALTY 6 GAS	CONCRETE 3 CONCRETE 4 COPEN HOLE 5 PLASTIC	21 250	FROM 10-1	10		AD PACKER, ETC J
2 5ALTY 6 GAS 30-33 I FRESH 3SULPHUR 34 00	24-25 26 1	27-30	10-2	22-25		
$\begin{array}{c c} & 4 & \square \text{ minerals} \\ \hline 2 & \square & \text{Salty} & 6 & \square \text{ gas} \end{array}$	4 OPEN HOLE 5 OPEN HOLE		26-21	9 30-33 80		
PUMPING TEST METHOD         10         PUMPING RATE           1         1         PUMP         2         BAILER	11-14 DURATION OF PUMPING 15-16 17-11 GPN 100000 100000 100000 100000 1000000 1000000		LC	OCATION OF	WELL	
	ELS DURING		GRAM BELOV	W SHOW DISTANCES O CATE NORTH BY ARRO	F WELL FROM ROA W.	DAND
Image: Powring         Powring           00         19-21         22-24         15 MINUTES           11         24-28         24-28         24-28	30 MINUTES 45 NINUTES 60 MINUTES 29-31 32-34 35-3	,] '		0.C.+	*5	
C FEET 200 FEET 135 FEET IF FLOWING. 20038-41 PUNPTHTAKE SET GIVE RATE GPN RECOMMENDED PUMP TYPE RECOMMENDED PUMP TYPE PUMP		1				
RECOMMENDED PUMP TYPE RECOMMENDED PUMP	FEET CLEAR 2 CLOUDY 43-45 RECOMMENDED 46-41 PUMPING	-1 [		,5		
SHALLOW DEEP SETTING	50 FEET RATE 5 GPM	1 R	ė <sup>5</sup> ,	ines X		
FINAL 1 WATER SUPPLY	<ul> <li>B ABANDONED, INSUFFICIENT SUPPLY</li> <li>B ABANDONED POOR QUALITY</li> </ul>		BUS	STRAT	1	
STATUS 3 D TEST HOLE OF WELL 4 D RECHARGE WELL	7 [] UNFINISHED 0 DEWATERING		1			
	COMMERCIAL	11 /	ł	1	$\downarrow$	
	P D PUBLIC SUPPLY					
57 CABLE TOOL				1 4'	1	$\backslash$
METHOD 2 CONVENTION OF 3 COTARY (REVERSE)	NAL) 7 🗍 DIAMOND B 🗍 JETTING		1	•	1	
	DRIVING     DIGGING OTHER	DRILLERS REMARKS	LA	ot #57	' 6	0325
NAME OF WELL CONTRACTOR	WELL CONTRACTOR'S Licence number		S& CON			63-68 80
Capital Mater Supply Lt		O DATE OF INSPECT	ION	NSPECTOR	<u>ULI 221</u> 9	<u>192    </u>
Box 490 Stittsville, O	I WELL IECHNICIAN S					
	LICENCE NUMBER					
BOX MILL CONTRACTOR	SUGHISSION DATE TOOST	OFFICE				

· · · · · /		The Or	stario <sup>(</sup> Wa	ter Resource	s Act	454
Ministry of the	WA		NE	LL F	RECO	RD
Ontario Environment	CES PROVIDED	151769	)4 j	15005		02
COUNTY OR OTSTRICT A +	BOX WHERE APPLICABLE	.G E	CON BLOG	Con 2	TI O	08.17
	P(#2. (	and. KU	SA /			OST PI
	16799	4 0380				
10 12	OF OVERBURDEN AND BEI	DROCK MATERIAL	S ISEE INSTR	UCTIONS	DEPT	H · FEET
GENERAL COLOUR COMMON MATERIAL	OTHER MATERIALS		GENERAL D	ESCRIPTION	FROM	то
ney clay					Ó	3
7	A				Q	21
grey hardpan	gravel				5	
grey gravel					21	25
						C
					Į į	
(31) bog3205 1 002/	211111 100352111					
					1-33 DIAMETER 34-38	75 80 LENGTH 39-40
41 WATER RECORD	51 CASING & OPEN H	DEPTH - FEET		L AND TYPE	DEPTH TO TO	
AT - FEET RING OF WATCH	10-11 T GOTEEL 12 2 [] GALVANIZED //20	74.99	sc		OFSCREEN	FEFT
15-78 1 - FRESH 3 - SULPHUR 19 2 - SALTY 4 - MINERAL	17-18 1 CONCRETE 7/08	20-23	61 DEPTH SET	AT FEET M		EMENT GROUT
20-23 1 D FRESH 3 D SULPHUR 24 2 SALTY 4 D MINERAL 25-28	CONCRETE		FROM 10-13	14-17		
25-28 1 _ FRESH 3 _ SULPHUR <sup>29</sup> 2 _ SALTY 4 _ MINERAL 30-33 1 _ FRESH 3 _ SULPHUR <sup>34</sup> 80	24-25 1 [] STEEL 26 2 [] GALVANIZED 3 [] CONCRETE	27-30	18-21	22-25 30-33 80		
2 SALTY 4 MINERAL	4 OPEN HOLE			CATION O	FWELL	
71 1 1 PUMP 2 D BAILER 00 3 (	0 GPM 0/ 15-16 00	17-18 	AGRAM BELOW		S OF WELL FROM ROA	DAND
LEVEL PUMPING	VELS DURING 2 RECOVERY 30 MINUTES 45 MINUTES 60 M/N					.7
	ET AT WATER AT END OF TEST	42		1		N.
U IF FLOWING. GIVE RATE RECOMMENDED PUMP TYPE RECOMMENDED PUMP TYPE C		OUDY 46-49	C	) 140 m.	•	
SO-53		GPM				
FINAL 2 OBSERVATION WEL STATUS , TEST HOLE		UPPLY	(	7 3	-mi,	
OF WELL , ECHARGE WELL	7 UNFINISHED 					
WATER 2 STOCK 3 IRRIGATION 4 INDUSTRIAL	6 MUNICIPAL 7 PUBLIC SUPPLY 8 COOLING OR AIR CONDITIONING					
METHOD CABLE TOOL 0 ROTARY (CONVENT 0 F C 3 D ROTARY (REVERSE				<b>I</b> .	14. -	
DRILLING				NTRACTOR 59-62	DATE RECEIVED	
HOLONESS 200	Jef Aprillery 364	Source	1	3644 INSPECTOR	12°01	82
	Licence N					
NAME OF DATILLEA OR BORER	SUBNISSTON DATE	OFFICE				
MINISTRY OF THE ENVI	BONMENT COPY	YR			FORM NO.	0506-4-77 FORM

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Environment

Ministry

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Print only in spaces provided. Mark correct box with a checkmark, where applicable.

# The Ontario Water Resources Act WATER WELL RECORD

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Mark correct box v	with a checkmark, where applicable.	11	15324	01			1 02
County or District	Parleton	Township/Borough/City/T			Con block tract surv 2	ey, etc. Lo	ot <sup>25-27</sup> 8
OLUMA		Address 164 Robertson	Rd Nepeal	n ON. K2H	Date	12 10	
21		Northing		vation RC	Basin Code ii	day n	iv
1 2	10 12	VERBURDEN AND BEDR	DCK MATERIALS (s	see instruction	131 15)	· · · · · · · · · · ·	47
General colour	Most common material	Other materials		General d	escription	Dept From	h - feet To
Brown	sand					0	5
Grey	sand gravel and					5 18	18 23'6"
Grey	gravel b Limestone	oroken rock				23'6	
Grey	Linescone			· ····		23 0	
		· · · · · · · · · · · · · · · · · · ·					
Note cas	sing was left 4 ft. ab	ove ground level	at time of	drilling	•		
31	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				<u> </u>
32		┕╜└ <del>╷┙┥┥┥┥╵╵╵╵╵╵╵╵╵╵╵╵╵╵╵╵</del>	┘└╵┵ <del>┎</del> ┶┶┶┶┶ ╛└╷╷╻╷╎╵╵╽╵		┷┿┿┙╹╌╌ <u>┥┥╷╽╷</u> ╺┙┥└┶╴		╶┶╌┷┙└
41 WATEF	R RECORD		ECORD Depth - feet	Sizes of op (Slot No.)	ening 31-33 Diamete	r <sup>34-38</sup> Lenç	75 80 jtth 39-40
at - feet	Kind of water diam	Material thickness inches	From To	Material ar	id type	inches Depth at top	feet of screen 30 41-44
2	Salty         4 □ Minerais         2           6 □ Gas         3	Galvanized	0 25 <sup>-16</sup>	Ň			feet
2 []	Salty         4         Millerals         5           Salty         6         Gas         17-18	Open hole     Plastic     Steel <sup>19</sup>	20-23		LUGGING & SEALIN		
	Fresh <sup>3</sup> Sulphur <sup>24</sup> Salty <sup>4</sup> Minerals <sup>3</sup>	Gatvanized Concrete Copen hole	25 50	Depth set at -			
	Salty 6 Con	Plastic  Steel <sup>26</sup> Control	27-30	<b>25</b> <sup>10-13</sup> 18-21	0 <sup>4-17</sup> Grouted	Cement(	5)
	Fresh <sup>3</sup> Sulphur <sup>34</sup> <sup>60</sup> 3 4 Minerals 4	Gaivanized Concrete Open hole Plastic		26-29	30-33 80	<b>.</b>	
Pumping test me		Duration of purpping	I				
71 1 DPump 2	Bailer 15 GPM	15-16 17-18 Hours Mins		n below show	ATION OF WELL distances of well from	road and lo	t line.
L. I Static level I	d of pumping water levels during a pu	Pumping     2     Recovery       45 minutes     60 minutes       32-34     35-37		orth by arrow.	LO.C.* 5	)	
LS 4 feet	25 48 feet 48 feet	25 25 feet				4	
If flowing give rate	GPM feet	Water at end of test 42 Clear 😭 Cloudy Recommended 46-49				1	
	pump setting 30 feet	pump rate 5 GPM				f I	
50-53	OF WELL 54					i I	
<ul> <li><sup>1</sup> Water supplier</li> <li><sup>2</sup> Observation</li> <li><sup>3</sup> Test hole</li> </ul>		oly 9 🗌 Unfinished 10 🗌 Replacement well			× P.Hrss No Building Wellin Frant	1	
4 🗆 Recharge w					Well in front	e) I	
WATER USE         1       X Domestic         2       Stock	55-56 5 🖸 Commercial 6 🔲 Municipal	9 □ Not use 10 □ Other		<b></b>			
3  Industrial	7  Public supply 8  Cooling & air conditioning				00	5 2	~
	ONSTRUCTION 57			λ.	×~ *~	230	
<ol> <li>Cable tool</li> <li>Rotary (con</li> <li>Rotary (reve</li> </ol>		9 Driving     10 Digging     11 Other		- \^s	, 5 <sup>°°</sup>	205	004
4 🗌 Rotary (air)			Tanoley	X	у 	230	284
Name of Well Contract	Nater Supply Ltd.	Well Contractor's Licence No. 1558	Data source	58 Contractor	58 59-62 Date re		001 *** **
Address			Тш		spector	<u></u>	
Name of Well Technic		Well Technician's Licence No.	Remarks				- NP - 1
S. Mille Signatzire of Technici	er /	TOO97 Submission date	A Remarks	er *		CSS.E	<b>L</b> - 1 L - 1
Afrana	∽∦	day 16 mo 10 yr 01	Σ		· · · · · · · · · · · · · · · · · · ·	0506 (07/0	D) Front Form (

2 - MINISTRY OF THE ENVIRONMENT COPY

Measurements recorded in: Metric Metric	A095914	Regulation 903 Ontario Water Resources Act Page of
Address of Well Location (Street Number/Name) Address of Well Location (Street Numer/Name) Address of Well Location (	Township Wast Carles City/TownAllage Municipal Plan and Sublot Number 7 289 Sealing Record (see instructions on the back of this for	Lot Concession Province Postal Code Ontario 15 Block Other Province Postal Code Ontario AR21396
General Colour Most Common Material	Other Materials	General Description Depth (m(7)) From Content
Erey Lim	estore	20' 101'
Keep Pump	Above 80FT	- Broken Pack
Depth Set at (n) From To (Material and Type)		Results of Well Yield Testing           ell yield, water was:         Draw Down         Recovery           sand free         Time         Water Level         Time
Method of Construction         Cable Tool         Cable Tool         Rotary (Conventional)         Jetting         Rotary (Reverse)         Driving         Boring         Diagging         Air percussion	Well Use         Commercial         Not used         Municipal         Dewatering         Test Hole         Cooling & Air Conditioning	$\begin{array}{c cccc} (min) & (min) & (min) & (min) \\ (m$
Other, specify Other, specify Other, specify	· .	rate (V/min / GPM) 15 94 4 15
	epth (m/ft) To To Construction) Water Supply Replacement Well Recommend Recommend (//min PM) Recommend (//min PM) Well product Disinfected?	20       9'2'' 20         ed pump depth (10/11)       25         ed pump rate       20         00       13'' 25         01       30         01       30         01       30         01       30         01       30         01       40         01       30         01       40         01       30         01       40         02       30         03       13''         04       13''         05       3'4''         50       3'4''         50       14''         50       14''         60       15''         60       15''         Map of Well Location
Outside Material Diameter (Plastic, Galvanized, Steel) Slot No. From	epth (nv/tt) Water Quality Please provid	e a map below following instructions on the back.
Water Details	Other, specify	1Km \$200'
Water found at Depth Kind of Water: Fresh Untes (n(ft)) Gas Other, specify Water found at Depth Kind of Water: Fresh Ontes (n(ft)) Gas Other, specify Water found at Depth Kind of Water: Fresh Ontes (n(ft)) Gas Other, specify	sted Depth ( <i>m</i> /ft) Diameter From To ( <i>cm</i> /in) sted 0' 161' 6'	# 124 Reis
Well Contractor and Well Techni Business Name of Well Contractor	Well Contractor's Licence No.	Kood
Business Address (Street Number/Name)	Additions	
Province Postal Code Business E-mail	Address Well owner's	Date Package Delivered Ministry Use Only

information package delivered

XYes

No

10051

Date Work Completed

00100512

Well Technician (Last Name, First Name)

20100621

Ministry's Copy

A

a code)

3838

5

0506E (12/2007)

2170

Name of

Kons

Well A 095914

nt Below)

Well Record

Ministry of the Environment

Ontario

@ Queen's Printer for Ontario, 2007

Audit No. 2108337

JUN 2 5 2010

Ontario Well Tag No Well Record Ministry of A117443 the Environment Regulation 903 Ontario Water Resources Act Measurements recorded in: 📈 Metric Imperial Page of Well Owner's Information First Name S Construction MANAGEMENT LA Well Constructed by Well Owner Address (Street Number/N Municipality Province 831-7044 KOALO (613) BRIDE Well Location Address of Well Location (Str PROAD. Township Lot Concession 7. HUNTE City/Town/Village County/District/Municipa OTTAWA CARIETON. DALLO Province Ontario UTM Coordinates 2 Municipal Plan and Sublot Number 279 3016886 Other NAD 83 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) General Colour Depth (m/ft) Most Common Material Other Materials General Description FRAK SONS 20 TIL BZ Sont BOULDERS SHATE K LINESTRA Annular Space **Results of Well Yield Testing** Depth Set at (m/ft) Type of Sealant Used Volume Placed (m³/ft³) After test of well yield, water was: Draw Down Recovery (Material and Type) Time Water Level X Clear and sand free Time Water Level Other, specify (min) (m/ft) (min) (m/ft) 0.16 Static 1.76 If pumping discontinued, give reason Level 1 1 oump 2 2 6 m(100' 94 3 3 Method of Construction Well Use Public Domestic BI 4 4 Cable Tool Diamond X Commercial Not used Rotary (Conventional) Jetting Municipal Dewatering 5 Driving 5 Livestock Rotary (Reverse) Test Hole Monitoring Boring Digging Cooling & Air Conditioning end of pumping (m/ft) 10 9.68 10.0 Air percussion Other, specify Other, specify 10,71 15 15 4 n / GPM) **Construction Record - Casing** Status of Well 20 20 Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Inside Wall Depth (m/ft) Water Supply Replacement Well (m/ft) Diamete (cm/in) Thickne 254 25 From То (10) (cm/in) Test Hole Stel ASE9. 0.48+,91 KEB Recharge Well 30 2.07 30 376 6.H Om /10 Dewatering Well 40 40,3.6 Observation and/or PI GPR Monitoring Hole 50 3. to na 10 50 Alteration (Construction) 60 60 Jol Abandoned, Insufficient Supply Yes Yes No Construction Record - Screen NIA Map of Well Location Abandoned, Poor Outside Diameter Please provide a map below following instructions on the back Material (Plastic, Galvanized, Steel) Water Quality Dept (m/ft) Slot No. Abandoned, other, (cm/in) From To specify Other, specify Hole Diameter Water Details Water found at Depth Kind of Water: Fresh Untested Depth (m/ft) Diamete (m/ft) Gas Other, specify 97.6 15,24 6.4 ound at Depth Kind of Water: Fresh Untested (m/ft) Gas Other, specify Water found at Depth Kind of Water: Fresh Untested Caronnal (m/ft) Gas Other, specify Well Contractor and Well Technician Informatio Business Name of Mer Cantactor Mile 4875 19, 157 PHUE ARCHES DR. PAKENAM ents Com Stand antive believer. Well owner information Ministry Use Only First Name) STURY Audit No. package z 1 32972 delivered Yes JUL C 8 2011 No 1.6000 Ministry's Copy

	4 12 • 0		No. 1 Contraction	, n		Nume			a a a sa s	Jan	an a		
Y) 0	nta	ario	Ministry o the Enviro		well Tag	Number (Pl	ace sticker and p	rint number below)	Regulation 90.	3 Ont			ecoro
structio	ns for	Comple	ting Form		AO	13760					ţ	bage _	of
All Sec Questic <b>All me</b> Please	tions re ons re tre me print o	nust be garding o asurem clearly in	completed in	n full to avoid his applicatio <b>e reported</b> t k ink only.	d delays on can bo to 1/10 <sup>th</sup>	in process e directed f of a metro	ihg. Further o the Water	instructions ar	Please retain for futur ad explanations are avain ment Coordinator at Ministry Us	ailable 416-	e on the ba 235-6203	•	this form
tava C	arle	ton					lest Car	leton - H	intley	3			2
#/Street N Reis S Reading	Roa	<b>i</b> NAD	Zone Easti	• I	Northi	ng	City/Town/V Carp Unit Make/N		•	ifferen	iated 🕽	act etc	
g of Ove	erbure	8 3 Ien and	Bedrock M	Iaterials (s	50 ee instr	<b>7 43 4</b> uctions)	Carmin		Diffe	erential	ed, specify		
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Hole	Diam	eter			Conet	ruction Rec	ord	· · · · · · · · · · · · · · · · · · ·		t of V	Vell Yield		
Depth	Metres	Diamet	er Inside			Wall	Depth	Metres	Pumping test method	Dr	aw Down		ecovery
From	То	Centimet		Materia	al	thickness	From	То	submersible	Time min	Water Level Metres	Time min	Water Lev Metres
0 6.40 4	6.40 5.11		11		ibreglass	Casing 0.48	+ 0,45	6.40		Static Level 1	1.95	1	2,22
Wat er found Metres	er Rec Kin	<b>ord</b> d of Water		Plastic C Galvanized	ibreglass				Duration of pumping	2	2.91	2	2.18
2.67 Gas Other: م	] Fresh ] Salty	Miner		Plastic C Galvanized	Concrete				Final water level end of pumping 3 millies Recommended pump	3	2.97	3	2,10 2,10
<b>no</b> m [ ] Gas [ ] Other:	Fresh			Steel F Plastic C Galvanized	ibreglass concrete				type. Shallow Deep Recommended pump depth. 22.86 etres	5	3.03	5	2.08
	Fresh			·····		Screen			Recommended pump	10	3.06	10	2.04
Other:	Salty	Miner	diam	Steel F		Slot No.			rate. (mresmin) If flowing give rate -	15 20	3.09	15 20	2.01 2.03
er test of we			\$     	Galvanized					(litres/min) If pumping discontin-	25 30	3.10	25 30	2.01
Other, spe				· · · · · · · · · · · · · · · · · · ·	No Ca	sing or Sci	een		ued, give reason.	40	3.10 3.12	40	2.00
orinated	Yes	No	15.39	Open hole			6.40	45,11		50 60	3.11	50 60	1.99
	Plug	ging and	Sealing Reco		Annular		pandonment		Location o	of We			
pth set at - I rom	Vetres To	Material and	type (bentonite :	slurry, neat cem	ent slurry)		ne Placed ic metres)	In diagram belo Indicate north b	w show distances of well fr y arrow.		ad, lot line, a	and bui	ilding.
.40	0	Groute	d - Bent	onite Sl	urry	0.2	m3		y arrow.	ſг	<b></b>		1
				<i>`i</i> g.					T L	L			
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Cable Tool		🕅 Rota			n amond	Г	Digging	3	1 000.	<u>ب</u> ند	5		
Rotary (con		) 🗹 Air I	percussion	Jet	ting		Other	14	Pers Indu	ົ້			
Rotary (reve	rse)	Bori		er Use	virių				( Ing	J.	•		]
Domestic Stock Irrigation		☐ Indu ☐ Con ☐ Mur	mercial icipal	No Co	blic Supply t used oling & air	conditioning	Other	Audit No. <b>7</b>		-	Completed YYY	<u>_</u>	MM _ DD
Water Supp	1' -	Recharge	e well		finished	Aband	oned, (Other)	Was the well o		e Deliv	200/ rered	ryy	8 24 MM DD
Observation Test Hole	well	Abandon	ed, insufficient s ed, poor quality	Re	watering placement			package deliver	ed? XI Yes No Ministry Use	Onl	2004		8  25
ne of Well C	ontracto		ontractor/Te	cnnician inf		Contractor's	Licence No.	Data Source		ntracto	r _	<b>R</b> E	5.0
shess Addre	ss (stre	r Supp et name: n	imber, city etc.)			1558		Date Received	YYYY MM DD Dat	e of In	spection Y	<del>D</del>	58 MM DD
			tsville, ie, first name)	Ontario	K2S 1	6 Technician's	icence No.	Remark	1 0 2004	4	·		
me or well T						Submitted		rtemarker 🖬 '	We		ord Number	<u> </u>	
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Measureme	ntario	the Env	ironment	Δ	A 092633 (Mell Record Regulation 903 Ontario Water Resources Act Page of 3								
County/Dist O UTM Coordi NAD	5 R trict/Municip TAW inates Zone 8 3 12 en and Ber olour WW MU	A CAR Easting	Northin A 4 750 Als/Abandonm on Material	ng 17365 ient Sealing Reco Ott STONE GREY	City/Town/Village	e back of this form) Gene LYRS SA	eral Description		Postal KO f	Code H LO h (m/l) To 142 /35 280			
From	ool Conventiona	Diamond	Annular Sp Type of Sealar (Material and T TONIT	t Used Sype) ESLUR Well U Well U Stic Munici	Ise ercial Dewatering	hre +	I, water was: free LEARIN Jed, give reason (m/ft) / G <u>PM</u> )	Static Level	vn Ro Level Time	ecovery Water Level (m/tt) 8.25 6.3 5.6 5.2 4.9			
Boring Air perce Other, s Inside Diameter (cm/in)	Open Ho (Galvaniz Concrete STE OPE)	le OR Material ed, Fibreglass, Plastic, Steel) SEL N HOLE	Linigation Industry Conternation Industry Conternatio Industry Conternation Industry Con	rial specify Depth $(m/ft)$ From To $f^2$ 23 23 28	g & Air Conditioning	Disinfected? Yes No Please provide a ma	Map of V	10 8. 15 9, 20 9. 25 9.4 30 9. 40 9. 50 /0. 60 /0. Nell Location	4       10         D       15         3       20         15       25         75       30         9       40         0.5       50         15       60         0       15         0       15	4.2 3.8 3.5 3.35 3.1 2.75 2.65 2.55			
Water four 135 (r Water four 268 (r Water four Water four Business M T Business M Frovince ON	m/ft) Gas nd at Depth m/ft) Gas nd at Depth m/ft) Gas M Name of We SAU Address (Str 244 / 1 1 1 2 1 1 2 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	Contractor Contra	r: Fresh A confy r: Fresh A confy r: Fresh A confy r: Fresh A confy or and Well Technology Business E O Business E O SAUN of Technology A	Untested De From Untested 0 23 Untested 23 Chnician Inform LTD V -mail Address	Contractor's Licence No Contr	Comments: Well owner's Date information package delivered Ves No	Package Delive	Audit	Ainistry Us N° 120	549			

() Ontario



Ministry of the Environment Well Tag Number (Place sticker and print number below) <u>a cosses</u>

A006995

Regulation 903 Ontario Water Resources Act

\_ of \_ page \_\_\_

- Instructions for Completing Form
- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference. All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form. Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203. All metre measurements shall be reported to 1/10<sup>th</sup> of a metre. Please print clearly in blue or black ink only.
- . Please print clearly in blue or black ink only

**Ministry Use Only** 

A -1 -1			· · · · · ·								
Address of Well Li Ottawa Carl		//District/Mu	nicipality)		I	ownship Weet Cer	rleton - F	Lot Instice	8	Concess	ion <b>2</b>
RR#/Street Numb	er/Name					City/Town/V				t/Block/Trac	-
155 Tansley GPS Reading	NAD Zor	ne Eastin	<u> </u>	Nort	hina	Carp Unit Make/N	Model Mod	le of Operation: Unc	differentia	atod Nr /	Veraged
	8 3 18	423	43 4	50	1 74 30	Garmin				ed, specify	werageu
Log of Overbu			iterials (							Donth	
General Colour	Most common			Other Ma	iterials			al Description		Depth From	Metres To
Gray	Sandy	Clay					F111			0	.91
Gray							F111	L		.91	8.38
Gray	Limest	one		Shale						8,38	85.03
	0.0										
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Hole Dia	meter		Ļ	Cons	truction Re			т		ell Yield	l
Depth Metre		Inside			Wall	Depth	Metres	Pumping test method	1	w Down	Recovery
From To	Centimetres	diam	Mate	rial	thickness			sutmersible	Time V		me Water Level
0 9.2	9 22.53	centimetres;		i	centimetres	From	То	Pump intake set at -	min Static		nin Metres
83.21 85.0	$\frac{3}{14.59}$	,	X Steel		Casing			(metres) 45.72 Pumping rate -	Level	5.19	
83.21 85.0	3 14.59	15.86	Plastic	Fibreglass Concrete	0.45	+ 0.45	9,29	(litres/min)22,75	1	7.05	1 <b>9.49</b>
Water Row			Galvanize					Duration of pumping	2	7.39	2 <b>8.83</b>
at Metres <sup>r</sup>	Kind of Water			Fibreglass				Final water level end		7.62	3 <b>8.25</b>
Gas Salt		:	Plastic Galvanize					of pumping 10,46			
Other:	· · · · · · · · · ·			Fibreglass				Recommended pump type.	4	7.88	4 <b>7.98</b>
<b>3077</b> n Free Gas Salt			Plastic	Concrete				Shallow K Deep Recommended pump	5	8.08	5 <b>7,73</b>
Other: Not T			Galvanize	d				depth. 45.72 metres			
m Free Gas Salt		Outside in			Screen			Recommended pump rate. 2275757	10 15	8.86 1 9 3/ 1	
Other:		diam	Steel	Fibreglass Concrete	Slot No.			If flowing give rate -	20	0 7/ 2	20 5 01
After test of well yie Clear and sedim			Galvanize					(litres/min)	25	_10.06 <sup>_2</sup>	<sup>25</sup> <b>5.82</b>
Other, specify			hit	No C	asing or Sc	reen		ued, give reason.	30 40	10.23 3 10.46 4	<sup>0</sup> 5.72
Chlorinated 🥆 Yes	No	15.23	COpen hole	1		9.29	83.21		50	10.46 5	5.62
· · · · · · · · · · · · · · · · · · ·		14.59	-			83.21	85.03		60	10.46 6	<u>5,60</u>
PIL Depth set at - Metres	Material and typ	<u> </u>		Annulai	veto Volu	Abandonment me Placed	In diagram belo	Location of w show distances of well from the stances of well from the stances of well from the standard standa			building.
From To <b>9.29 0</b>					(CUE	ic metres) B <b>ra3</b>	Indicate north by	yarrow. 🕴 🗯 15 .		1	Ŭ
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		ethod of C	onstructi	on				Konolog	$O_{r_{r_{r_{r_{r_{r_{r_{r_{r_{r_{r_{r_{r_$		
Cable Tool	🛛 Rotary (a nal) 🛛 Air perci			liamond etting	L	Digging Other		$f_{\rm eff}$			
Rotary (reverse)				nving							
Domestic	Industria	Water		ublic Suppl	М. Г					/	
Stock	Commer	cial	N 🗋	ublic Suppl lot used		Other				/	
Irrigation	Municipa	Final Statu			r conditioning		Audit No. Z	06995 <sup>Dat</sup>	e Well (	Completed YYYY	MM DD
Water Supply	Recharge we			nfinished	Abanc	loned, (Other)		wner's information Date	e Delive	2004 ared YYYY	MM DD
Observation well Test Hole	Abandoned,	insufficient su poor quality		ewatering eplacemen	t well		package delivere	ed? Yes No		2004	4 30
	Well Cont	ractor/Tech		formatio	n			Ministry Use			
Name of Well Contra		ۍ <u>به</u> ۲		We	Il Contractor's 1558	Licence No.	Data Source	Cor	ntractor	155	8
Capital Wat Bushess Address (st							Date Received	2 4 2004 DD Date	e of Inst	pection YYYY	MM DD
P.O. Box 49 Name of Well Techni	0 Stitts cian (last name. fi	ville,0	Ntario		A6 Il Technician's	Licence No.	JUN 2 Remarks		I Recor	d Number	
Stanton: Pe Signaturg di Technici		· · · · · · · · · · · · · · · · · · ·			T0086			<u>188.0.8</u>			0 6
- <i>FABL M</i>	ian/Contractor			Date		4 4 30		•	1	5346	02
0506E (09/03)		Contr	actor's Cop	oy 🔄 Mi		Well Owr	ner's Copy	Cette fo	rmule	est disponib	le en français

P Or		linistry of ne Environ		Well Tag I		ce sticker and prin					
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<ul> <li>All Section</li> <li>Question</li> <li>All metric</li> <li>Please p</li> </ul>	ons <b>must</b> be com ns regarding com re <b>measurements</b> print clearly in blue	pleted in fu pleting this <b>s shall be</b> i e or black ii	Ill to avoid applicatio reported nk only.	d delays in on can be to 1/10 <sup>th</sup> (	n processii directed to of a metre	ng. Further in the Water	nstructions	Please retain for future refer and explanations are available of gement Coordinator at 416-23 Ministry Use Only	on the back of 35-6203.	this form.	
Well Owner	r's Information a	and Locat	ion of W	ell Inforr	mation	MUN			LOT		
Ottawa ( RR#/Street Nu	Carleton Imber/Name Tansley Co	urt				West Car City/Town/Vil Carp		tuntley 8 Site/Compartment/	Block/Tract etc	<del>).</del>	
GPS Reading	NAD Zone 8 3  18	Easting	16		7450	Unit Make/Mo Garmin	odel M	ode of Operation: Undifferentiat	- <u>E-7</u>	aged	
Log of Over General Colour	Most common	(	· · · ·	ee instru Other Mate	······ /		Cor	neral Description	Depth	Metres	
		naterial				· .			From	То	
brown light by	soil rown sandy s	ad 1	sto	nes		10	ose		0 3.35	3.35	
	hardpan	011					cked		6.09	7.61	
gray hardpan gray limestone dark layers						pa	-AUU		7.61	83.20	
gray	TIMESLONE		ug 1	<u>, idje</u> i					1.01	0.0420	
			and a second								
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	Diameter	:		Constr	uction Rec	T		Test of We		ecovery	
Depth N From	MetresDiameterToCentimetres	Inside diam	Materi	al	Wall thickness	Depth	Metres	Time	ater Level Time	Water Level	
0 9	.44 22.75	centimetres		•	centimetres	From	То	Pump intake set at - Static	Metres min	Metres	
	3.20 15.39				Casing			(metres) 45.71 Level			
<b>9.44</b> 0.	J.20 1J.33		Steel					Pumping rate - 1 (litres/min) 45.5	5.23 1	5.54	
	r Record		Galvanized		0.48	+.60	9.44	Duration of pumping 2	5.45 2	5.34	
Water found at Metres	Kind of Water		Steel	Fibreglass				Final water level end 3	<b>5,58</b> 3	5.31	
11658	Fresh Sulphur		Plastic	1				of pumping	<u>, 96 2</u>	LC+C	
Other:			Galvanized						5.66 4	5.27	
	Fresh Sulphur		Plastic	-				Shallow Teep Recommended pump 5	5.74 5	5.23	
Not Test	, ,	<u> </u>	Galvanized	1				deptn. 45.71 etres			
m	Fresh Suiphur Salty Minerals	Outside			Screen	· · ·	-		5.92 10 6.02 15	5.08	
Other:		diam	Steel	-	Slot No.			If flowing give rate - 20	6.16 20	4.90	
After test of we	II yield, water was ediment free		Galvanized	i ·				If pumping discontin- 30	<b>6.15</b> 25 <b>6.18</b> 30	4.81	
Other, spec				No Ca	sing or Sci	een		40	<b>6.21</b> 40	4.78	
Chlorinated 🕱	Yes No		YOpen hole		-	0.44	83.20	50 60	6.23 50 6.25 60	4.74	
A	Plugging and Se	15.39	d F	Y Annular		9.44	03.20	Location of Well		4./1	
Depth set at - M	tetres Material and typ			45	otr Volui	me Placed		below show distances of well from road		iilding.	
From 9.44 0	10					ic metres)	Indicate nor	th by arrow.	·		
9.44 U	Groute	Benton	iile of	urry				/ 1	Т	× pitles	
								$ $ $\mathbb{R}$			
										н. 1	
							6		J*15'	2	
Cable Tool	N Rotary (	lethod of C air)		on iamond	·	Digging	*	Tan or	a far an		
Rotary (conv	ventional) 🙀 Air perc			etting		] Other	ŏ	Tapsley B	lis il	[	
Rotary (reve	rse) Boring	Wate		riving					A STA		
Domestic	Industria			ublic Supply	, E	Other		5	x Ron		
Stock	Comme		<u> </u>	lot used cooling & air	conditioning		Audit No.	Date Well	Completed	MM DD	
			us of Well					2 21001	2005	05 02	
Water Suppl		əll insufficient su	=	Infinished Iewatering		loned, (Other)	Was the we package del		2005	05 03	
Test Hole	Abandoned,			eplacement				Ministry Use Only			
Name of Well C	Contractor		mincian in		Contractor's	Licence No.	Data Sourc				
Capital	Water Suppless (street name, numb	Ly Ltd.			1558		Date Receiv	/ed O YYYY MM DD Date of Ins	558 pection YYYY	MM DD	
Box 490	Stittsville	e, Ontar	10 K2S	146			Date Receiv				
Name of Well T	echnician (last name, t Stephen	first name)		Wel	ll Technician's <b>10097</b>	Licence No.	Remarks	Well Reco	d Number		
Signature	chnician/Contracton				Submitted YYY						
0506E (09/03)	mint	Con	tractor's Co	iM □ yq	2005 nistry's Copy	05 05	ner's Copy F	Cette formule	est disponible	en français	
00000 (08/00)		001		יייי <b>ר</b> יי.			L				

	linistry of the Environment	A 043423	umber below)	Regulation 903 Ontari	Well R						
Instructions for Completing	g Form	904345	3		page_	of					
<ul> <li>For use in the Province o</li> <li>All Sections must be com</li> <li>Questions regarding compared to the section of t</li></ul>	f Ontario only. This docume pleted in full to avoid delays pleting this application can b shall be reported to 1/10 <sup>th</sup>	in processing. Further be directed to the Water	instructions and	t explanations are available o	n the back of	f this form.					
		MUN	C		LOT						
Address of Wen, dcallon (County/		~ USed	Grle	ton Burt 61		а					
	ese kood	City/7000n/V	(P)	of Operation: Undifferentiat	745	PLZ					
GPS Reading NAD Zong 813 Log of Overburden and Be		17454 100	gellen Mode	of Operation: Undifferentiate							
General Colour Most common r			Genera	l Description	Depth From	Metres					
S	nd a clay				0 4.88	488					
Diey	1, nestore		· · ·	······································	4.00	1507					
	· · · · · · · · · · · · · · · · · · ·										
			· .								
· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·						
Hole Diameter	Cons	truction Record		Test of We	ll Yield						
Depth Metres Diameter From To Centimetres	Inside	Wall Depth thickness	Metres		Down F ater Level Time	Recovery					
0 15.24 15.23	centimetres	centimetres From	То	Pump intakesset and Static	Metres min						
	Steel Fibreglass	Casing		(metres) Clark Level Pumping rate - 1	86 1	7.84					
Water Record	B B Plastic Concrete	,48 0	7.01	Duration of pumping 2	99 2	1,70					
at Metres Kind of Water	Steel Fibreglass	*		Final water level and 3	208 3	1,60					
Gas Sap Minerals	Galvanized			Recommended pump. 4	214 4	155					
Gas Suff Minerals	Steel Fibreglass			Shallow P Deep Recommended pemp 5	218 5	1.505					
Other: m Fresh Sulphur	Galvanized	Screen		Recommended pump 10	) <b>2</b> / 10	1.41					
Gas Salty Minerals	Outside diam Steel Fibreglass	Slot No.		(litres)min) 15 If flowing give rate - 20	2.34 15 2.36 20	1.38					
After test of well yield, water was	Galvanized			(jitres/min) 25 If pumping discontin- ued, give reason. 30	2,38 25 39 30	1.35					
Other, specification		casing or Screen 6.40	15.24	40 50	<b>4</b> 40	1.30					
Chlorinated Pices No Plugging and Sea	aling Record		15,97	60 60 Location of Well	2,43 60						
	e (bentonite slurry, neat cement slurry	Valume Disead	In diagram below Indicate north by	v show distances of well from road	lot line, and b	MID N					
6.40 0 Nad	Cemet Slurr	Y .227		+ 160 Ree	» 1 16						
	<u></u>		0	E AVM_	V	i – Alta Baser en					
	lathed of Construction		dre	·TE	oe f	ad					
Cable Tool Rotary (a			2	# 160 Kee	= 3 -						
Rotary (conventional)      Air percentional     Rotary (reverse)     Boring	Water Use										
omestic Industria	l 🗌 Public Supr										
		ir conditioning	Audit No. Z	48617	ompleted	0726					
Weter Supply Recharge we Observation well Abandoned,		e en la construction de construction de la construc	Was the well ov package deliver	vner's information Date Delive	ed yny						
Test Hole Abandoned, Well Cont	poor guality Replaceme tractor/Technician Informatio	nt well on		Ministry Use Only		an a					
Name of Well Constactor DRI	LINGIELT	elle Contractor's Licence No.	Data Source	Contractor	111	9					
KK#1 Kicth	NOND THE	KKAI KICHMOND UNF FOTIZO SEPU/2000									
	11/1			Well Recon							
Name statical last name, fi	are Ven	Vell Technician's Licence No.	Remarks		l Number						

	/inistry of he Environment	Well Tag A 036	038	per below)	Regulat	Well Record Fon 903 Ontario Water Resources Act			
Instructions for Completin	g Form	A036	-03	S		page of			
• For use in the <b>Province</b> of	of Ontario only. Thi pleted in full to avo pleting this applicat s shall be reported o or black ink only.	id delays in processing. ion can be directed to th I to 1/10 <sup>th</sup> of a metre.	Further instr	ructions and	explanations nent Coordina Minis	r future reference. are available on the back of this form			
	,			,					
RR#/Street Number/Name GPS Reading NAD Zone 8 3   2 Log of Overburden and Be	3 423194	Northing DOI 7468	yFown/Village it Make/Mode	Mode	of Operation:	Ompartment/BlockFract etc.			
General Colour Most common r	······	Other Materials	<u> </u>	General	Description	Depth Metres			
Dert	(Grey )	inestan	e			5,49 5,49 18,29			
						· · · · · · · · · · · · · · · · · · ·			
Hole Diameter Depth Metres Diameter		Construction Record			Pumping test	Test of Well Yield nethod Draw Down Recovery			
From To Centimetres	Inside diam centimetres Steel	Casing	Depth From	Metres To	Pump intakes (metres) Pumping rate (litres/min	Time Water Level Time Water Level min Metres min Metres			
Water Record         Water found       Kind of Water         at       Mitres         m       Fresh         Gas       Salue         Other       Sulphur         Gas       Salue         Minerals       Other:         Other:       Minerals	Steel	Fibreglass       Concrete       id       Fibreglass       Concrete	0 -	1.0(	Duration of pur hrs +C Final water lea of pur big Recommended type. Shallow Recommended depth.	2 min 2 1 1 2 1 . 3 8 end 3 8 08 3 1 . 2 7 metres pump 4 2 17 4 1 . 20 xDeep pump 5 2 2 4 5 1 14			
│ m │ Fresh │ Sulphur │ Gas │ Salty │ Minerals │ Other: ───── After test of well yield, water was	Outside diam Steel Plastic Galvanize				Recommended rate. (litres/ini If flowing give (litres/ini	ate - 20 2 4 9 20 .69			
Other, spectry		No Casing or Screer	 1		If pumping disc ued, give reaso	30         50         30           1         40         30         40			
Chlorinated Yes No	Open hole	e la	5.40 1	2.09		50 251 50 60 2 52 60			
Plugging and Sea	aling Record		donment		Loc	ation of Well			
6.40 Neat	e (bentonite slurry, neat co - Cenert ethod of Constructi	Slurry -		dicate north by	arrow. 10 A 16 4 (*16 4	of well from road, lot line, and wilding.			
Cable Tool Rotary (a Rotary (conventional) Rotary (reverse) Rotary (reverse) Componentic	Ussion	Detting □ Of Driving	gging ther	CHARLE POI	201	TNSLEY ROAD			
	al ( Final Status of Wel II ( insufficient supply [	Jnfinished Abandone	d, (Other) W		<b>39978</b> her's information	Date Weil Completed Date Delivered No			
Test Hole     Abandoned,      Mell Cont     Well Cont     Name of Well Contractor     Bulliness Address (street name, numbe     Kernet in the street name, numbe     Kernet in the street name, fill     Name of Well Technician (last name, fill     Signature of Technician/Contractor	ractor/Technician II	Well Contractor's Lice	7	ata Source ate Received MAY omarks		try Use Only       Contractor       119       DD     Date of Inspection       Well Record Number			
0506E (09/03)	Contractor's Co	ppy □ ^ Ministry's Cop	Well Owner's	Сору 📋		Cette formule est disponible en français			

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Well Tan No. (Place Sticker and/or Print Below)

A102665



Measurements recorded in: \_\_\_\_\_Metric \_\_\_\_\_Imperial

Address of Well L	Location (Street Number/N	lame) 20AD	1.	WINSHIP HUNTLE	- 8	4	12	
County/District/M		COMO		ty/Town/Village	1 0 1	Province	Postal	Code AILO
OFTAU	WA-CAK	ZEVON	V C	DV V AWA	(CARP)	Ontario Other	RU	A (40
UTM Coordinates NAD 8 3	10/10002	Northing	88 4	1.M745	PTER RP4R	521 1	PART 7	1-72
Overburden and	d Bedrock Materials/Al	pandonment Seali	ng Record	d (see instructions on the	back of this form)		Don	th (@1/ft)
General Colour	Most Common M			r Materials	General Descriptio	1	From	
BROWN	SAND				LOOSE		0	10
GREY	HARDPH	M	5Ja	NES	r		10	14
GRET	LIMEST						14	60
	Δι	nnular Space			Results of W			
Depth Set at (	n/ft) Type	of Sealant Used	<u></u>	Volume Placed	After test of well yield, water was:	Draw D	own R er Level Time	ecovery Water Level
		erial and Type)	+1A	a . a	Other, specify	(min) (	øî∕ft) (min)	( <b>A</b> Vft)
02	O GROU	UT TYPE	AIV	10 lys 80.4	If pumping discontinued, give reason	Static Level	24	20.6
				-		1	1,4 1	15.5
					Pump intake set at (m/ft)		3 2	123
						- 3 14	4 3	11.3
Method	of Construction		Well Us	8	Pumping rate (min / GPM)	4	46 4	117
Cable Tool	Diamond		Commer		Duration of pumping		7.0	11.14
Rotary (Conve Rotary (Revers		Livestock	Test Hol	e 🗌 Monitoring	hrs + min Final water level end of pumping (m/		· · V	11.7
Boring X Air percussion	Digging	Irrigation [	Cooling a	& Air Conditioning		10	8.2 10	10.4
Other, specify		Other, specify			If flowing give rate (MAR / GPM)	15	9.2 15	9.7
	Construction Recor			Status of Well		20 10	7.9 20	9.4
Inside Op Diameter (Ga	alvanized, Fibreglass, Thio	Nall Depth kness Eram	( <b>µ≉√ft)</b> To	Water Supply	Recommended pump depth (m/ft)	25 2	0,2 25	9.1
		m/in) From		Test Hole	Recommended pump rate		9.4 30	9,1
64 9	STFEL 1	88 0	2Q	Dewatering Well			0.5 40	9
1				Observation and/or     Monitoring Hole	Well production (###m / GPM)			8.7
				Alteration (Construction)	Disinfected?	1		
				Abandoned,	Yes No	اس	0.6 60	8.6
	Construction Recor	d - Screen		Insufficient Supply	Map of Please provide a map below following	Nell Locations		
Outside Diameter	Material astic, Galvanized, Steel)	lot No.	(um/ft) T-	Water Quality		PE	IS R	OAD
(em/in) (Pid		From		specify ``		T s	31	$\uparrow$
				Other, specify	12		-1	N
						' X	s   	Ma
	Water Details			th (m/ft) Diameter		WELL	8 8	
1 1000	Depth Kind of Water:	Fresh Guntested	From	To (arti/in)	1	NO ICCC		
	Depth Kind of Water:	Fresh Untested	Ø	20 64			t.	
( <b>i</b> it)	Gas Other, specify		20	60 6"			د م	
	t Depth Kind of Water:	Fresh Untested					1. 1.	
(agri/iti)	Gas Other, specify Well Contractor ar	nd Well Technicia	n Informa	tion			- 4. <sup>2</sup>	
	e of Well Contractor		We	ell Contractor's Licence No.				
PLUMI	BING VILL	46E	- C		Comments:			
During All	ess (oureer inumber/isame)	ONT		CARLETON				
Business Addre	19 CARD	ONT			11 ASSESSMENT AND A DESCRIPTION			
Business Address $BOX 4'$ Province	Postal Code	Business E-mail Add	ress		Matell summer Date Orthograp Date	ared	Minietny	se Oply
Business Addres BOX 42 Province	Postal Code	Business E-mail Add	ress	First Name)	Well owner's Date Package Deliv	10/2/00/102	Ministry Us	
Business Addre BOX 42 Province O M 7 Bus.Telephone N	Postal Code KOAICO No. ( <i>inc. area code</i> ) Name	Business E-mail Add	ress .ast Name,	First Name) U.S.E.	information package delivered	DOL AU	dit No.	se Only 821
Business Addre BOX 42 Province ON 7 Bus. Telephone N Bus. Telephone N	No. (inc. area code) Name	of Well Technician (L	ast Name,	USE ate Submitted	information package delivered Date Work Complet	ed Au	<sup>dit No.</sup> <b>z</b> 115	
Business Addre BOX 42 Province ON 7 Bus. Telephone N Bus. Telephone N	Postal Code KOAIAO No. (inc. area code) Name SQSSO	Business E-mail Add of Well Technician (L I )Y(O) M Fechnician and/or Co	ast Name,	USE	information package delivered Stes No No Date Work Complet	ed Au	<sup>dit No.</sup> <b>z</b> 115	821

	)12 10:58AM	CAN-MECH AGENCIES LTD.	No. 5243
Ontario	Ministry of	Well Tag No. (Place Sticker and/or Print Below	
	the Environment	A102654	Regulation 903 Ontario

Measurements recorded in: Metric Zatimperial

Well Record

lo Water Resources Act Page of

Address of Well Location (Street Number/Name)	Township /	Lot	Concessio	9 <b>0</b> 6 7
171 ANSIES BRIVE County/District/Municipélity	City/Town/Yillage	· · · · · · · · · · · · · · · · · · ·	Province	Postal Code
1772410 ( Sect 702) 6	ezzzz Ball		Ontario Other	前达两7146
UTM Coordinates Zone Easting Northing NAD 8 3 1 3 7 2 3 3 2 5 3 0	Municipal Plan and Sublot M M273 04537 - 00			
Overburden and Bedrock Materials/Abardonnen	Sealing Record (Seconsportions on the be	ck oknistorn) z z z z z z z z z z z z z z z z z z z	*****	Depth ( <i>m/n</i> )
General Colour Most Common Material	Other Materials	General Description		From To
BROWN SANK		PACK KEN		<u> </u>
BREY HARNPAN	35 ONIES			
GREY LIMPSTONE		MARKS HAR	10	12.0 48
		- Alwayee		
		1		
			na Area Area	
		V.C.		
Annular Space		After test of well yield, water was:	Draw Down	Recovery
Depth Set at (m/ft) Type of Sealant U From To (Material and Type	≥) ( <i>m</i> <sup>2</sup> //t <sup>3</sup> )	C.C.C.Far and sand free	Time VVater Le (min) (m/fi)	vel Time Water Level (min) (m/ft)
0 26 THOREID C.	SYTENT LODES BOR.	Other, specify fi pumping discontinued, give reason:	Static j Z	
		n haribilið elektrititierer Bise lergagir (	Level (	
		Pump intake set at (m/ft)	<u> </u>	2 /
		75	1.3	
Method of Construction	WellUse	Pumping rate (1/min / GPM)	3 19	3 / 7. 5
Cable Tool     Diamond     Public	Commercial 🗌 Not used	Duration of pumping	4 19	<u>6</u> 4 / km
Rotary (Conventionel) Jetting Domestic     Rotary (Reverse) Driving Livestock	Test Hole Monitoring	hrs +min	5 7.0.	6 5 16.4
Boring Digging Intrigation	Cooling & Air Conditioning	Final water level end of pumping ( <i>m/t</i> ) $\frac{1}{5}$	10 2 3.	2 10 / 5
Air percussion     Industrial       Other, specify     Other, sp		If flowing give rate (Vmin / GPM)	15 24.	2 16 14 7
Construction Record - Casing	Status or Well	Recommended pump depth (m/ft)	20 7. 4	Q 20 1 the int
Inside Open Hole OR Material Wall Diameter (Galvanized, Fibreglass, Thickness <sub>Fr</sub>	om To Replacement Well	Keconmended bomb debuilterio	25 12 5	2 25 14
(crivin) Concrete, Plastic, steel) (a)rvin)		Recommended pump rate (I/min / GPM)	30 2 4	2 30 / C+ j
<u>62 STREL 188 (</u>	Dewstering Well	6	40 7.5.	5 40. [ hay 1
	Observation and/or Monitoring Hole	Well production (Umin / GPM)	50 11	50 1 3 7
	(Construction)	Disinfected? ⊡∽res □ No	60 11	60 1 3
	Abendoned, Insufficient Supply	Map.ot.M	ell'l'ocation .	
Outside Motorial	Depth (m/ft) Depth (m/ft)	Please provide a map below following	; instructions on t	ne back, .
Diemeter Slot No.	rom To Abandoned, other, specify	F		i L
	· · · ·	N 14		*. {
	Other, specify		~	· ·
	Hole Diameter			ų į
Water found at Depth Kind of Water: Dr		1		t ;
?// (m/ft) □ Gas     Other, specify       Water found at Depth     Kind of Water: □ Fresh □ Ur			4	λ.
(m/#) Gas Other, specify	- 16 98 h		1412	
Water found at Depth Kind of Water: Fresh			TX- 20	<u> </u> 5 ,
(m/ft) Gas Other, specify	bniclan information		20	
Business Name of Well Contractor	Well Contractors Licence NO. 1	SAR 54	Red &	S (1)
PI UNTBIAG VILLAGE Business Address (Street Number/Name)	Municipality A 11/A	Comments:	· ( · · · · · · · · · · · · · · · · · ·	
Business Address (Street Number/Name)       Province     Postal Code     Business E-n	Municipality 10 U/A			
Province Postal Code, // Business E-n	nai] Address	Well owner's Date Package Delive	ared	inistry:Use Onlyst
Rus Telephone No. (inc. area code) Name of Well Tech	nician (Last Name, First Name)	information package	Audit n	lo.
THE TELEVISION INC. INC. BOD WARY I THE TELEVISION	·	delivered	<u>, 1                                    </u>	115818
- (1, 1, 1, 1, 1, 2) (1, 2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	$\mathcal{O} = S \mathcal{O} \mathcal{O} S \mathcal{O}$	Date Work Complete		
Well Technician's Licence No.     Signature of Technician ar       Signature of Technician ar     Signature of Technician ar	$\mathcal{O} = S \mathcal{O} \mathcal{O} S \mathcal{O}$	Tes Date Work Complete		əd

Ontario       1525480       Image: Second condition of the second condition o	of th	istry he ironment	TAW		Ontario Water Resources Active Strength	
Construct         Townsort assessed         Construct	<u></u>	1. PRINT ONLY IN S		15 <b>254</b>		ON 02
Box 63       Manotick_Ontario       KOA       200       av       18       cost       53       Manotick       M	COUNTY OR DISTRICT	Z. CHECK 🖂 CURR	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	<u> </u>		
21       1			······································	tick.Onta	DATE CO	
LOG OF OVERBURDEN AND BEDROCK MATERIALS     Settion fills       BITOM     Constant fills       BITOM     CLay     Stones     Packed     0       Gray     Gravel     Sand     Wet     6     15       Gray     Limestone     Medium Soft     15     223       Gray     Limestone     Limestone     Limestone     Limestone       Gray     Limestone <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>						
CEEREAL COLOUR       COMMANDER       OTHER BATERIAL       CEEREAL COLOUR       TO         Brown       Clay       Stones       Packed       0       6         Gray       Gravel       Sand       Wet       6       15         Gray       Limestone       Medium Soft       15       223         Stary       Limestone       Medium Soft       15       223         Stary       Limestone       Medium Soft       15       223         Stary       Starsteine       Medium Soft       15       223         Starsteine       Medium Soft       15       223         Starsteine       Starsteine       Starsteine       Starsteine       Starsteine         Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine         Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine         Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine       Starsteine <t< td=""><td></td><td></td><td>UG OF OVERBURDEN AND BEDR</td><td>CK MATERIA</td><td>30 31 ALS (SEE INSTRUCTIONS) 1</td><td></td></t<>			UG OF OVERBURDEN AND BEDR	CK MATERIA	30 31 ALS (SEE INSTRUCTIONS) 1	
BY CON         CLay         Stories         Headium         Headium         Soft         15         223           Gray         Limestone         Medium         Soft         15         223           Gray         Limestone         Medium         Soft         15         223           Gray         Limestone         Medium         Soft         15         223           Gray         Limestone         Gray         Gray <td>GENERAL COLOUR</td> <td></td> <td>OTHER MATERIALS</td> <td></td> <td>GENERAL DESCRIPTION</td> <td></td>	GENERAL COLOUR		OTHER MATERIALS		GENERAL DESCRIPTION	
Gray     Cray     Limestone       Gray     Limestone     Medium Soft     15     223       Gray     Limestone     Medium Soft     15     223       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     Image: Soft     Image: Soft     Image: Soft       Image: Soft     Image: Soft     <	Brown	Clay	Stones		Packed	
Gray         Limestrone           31	Gray	Gravel	Sand			
32       10       14       12       10 <td< td=""><td>Gray</td><td>Limestone</td><td></td><td></td><td>Medium Soft</td><td>15 223</td></td<>	Gray	Limestone			Medium Soft	15 223
32       10       14       10 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
32       32 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
32       10       14       12       10 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
32       32 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
32       32 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
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32       33       32       33         34       WATER RECORD       31.32       JAMITER RECORD         WATER RECORD       KIND OF WATER       SILENUR       SIL				┋ <mark>╘<sub>┺┺┺</sub>┹┹</mark>	<u>╷╷╷╷╷╷╷╷╷╷╷╷</u>	
WATER FOUND AT - FEET       KIND OF WATER POIND 219       KIND OF WATER PRESM       NUMERALS Solution Contention       NUMERALS Solution       NUMERALS Sol	1 2 10	ATER RECORD	51 CASING & OPEN HOLE	RECORD	SIZE (S) OF OPENING 31-33 D	AMETER 34-38 LENGTH 39-40
219       2       SALTY 6       GERS       2	WATER FOUND AT - FEET	KIND OF WATER	DIAM MATERIAL THICKNESS	· · · · · · · · · · · · · · · · · · ·	MATERIAL AND TYPE	DEPTH TO TOP 41-44 30
10       FRESH       3       SuluPHUR       3       SuluPHUR       3       SuluPHUR       3       SuluPHUR       3       SuluPHUR       20-23       20-23       1       FRESH       3       SuluPHUR       24       SuluPHUR       24       SuluPHUR       24       20-23       1       FRESH       3       SuluPHUR       24       SuluPHUR       24       24       20-23       DEPTH SET AT - FEET       MATERIAL AND TYPE       ICEMENT GROUT         20-23       1       FRESH       3       SuluPHUR       24       Concerter       21       223       DEPTH SET AT - FEET       MATERIAL AND TYPE       ICEMENT GROUT         20-23       1       FRESH       3       SuluPHUR       24       SuluPHUR       21       223       DEPTH SET AT - FEET       MATERIAL AND TYPE       IceMENT GROUT         21       Salary       6       IAS       SuluPHUR       24       SuluPHUR       21       223       22-25       Concerter       21       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25       22-25	219 2	SALTY 4 MINERALS 6 GAS		0 21"		
20-23       1       I PRESH       3       I SULPHUR       2       GALVANIZED       21       223         25-28       1       PRESH       3       I SULPHUR       5       I SULPHUR       20       21       223         30-33       1       PRESH       3       I SULPHUR       3       I SULPHUR       24-25       27-30       III-21       22-25         30-33       1       FRESH       3       I SULPHUR       3-6       I SULPHUR       3-6       I SULPHUR       3-6       I SULPHUR       24-25       27-30       III-21       22-25       IIII-21       III-21       22-25       III-21       22-25       III-21       22-25       III-21       III-21       22-25       IIII-21       IIII-21       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	2	SALTY 4 MINERALS 6 GAS		20-2	3 DEPTH SET AT - FEET MATERIAL	AND TYPE ICEMENT GROUT
1       PRESN       3       SULPHUR       4       Immediate       24-25       27-30       18-21       22-25       1       18-21       22-25       1       18-21       22-25       1       18-21       22-25       1       18-21       22-25       1       18-21       22-25       1       18-21       22-25       1       18-21       22-25       1 <td>2</td> <td>4 0 MINERALS 6 0 GAS</td> <td>2 GALVANIZED 3 CONCRETE 4 XOPEN HOLE</td> <td>21 223</td> <td>10-13 14-17</td> <td></td>	2	4 0 MINERALS 6 0 GAS	2 GALVANIZED 3 CONCRETE 4 XOPEN HOLE	21 223	10-13 14-17	
Image: Instant d minetrals       Image:	2	G SALTY 6 GAS	24-25 1 STEEL 2 GALVANIZED	27-30	0 18-21 22-25	
71     1 10 PUMP     2 Image: Bailer     3 minutes     15-16 minutes     17-18 minutes       STATIC     WATER LEVEL     225     WATER LEVEL     225     Minutes       STATIC     EVEL     PUMPING     1 minutes     1 minutes       192     19-21     22-24     15 minutes     29-31     45 minutes     60 minutes       30     FEET     175     FEET     175     FEET     175     FEET       11F FLOWING     31-41     PUMP INTAKE SET AT     WATER AT END OF TEST     42     CLOUDY	- I	4 DMINERALS	4 OPEN HOLE		26-29 30-33 00	
STATIC LEVEL END OF LEVEL END OF PUMPING 30 FEET 175 FEET 175 FEET 175 FEET	71	1	<b>3 7</b> 15-16 17-18	. 1 1		
O     JU     FEET     1/J     FEET     1/J     FEET     1/J     FEET       IF     FLOWING     30-41     PUMP INTAKE SET AT     WATER AT END OF TEST     42       GIVE     GIVE     RATE     1/DE     1/DE     CLOUDY	LEVEL	END OF WATER	2 RECOVERY			ELL FROM ROAD AND
C IF FLOWING. 30-41 PUMP INTAKE SET AT WATER AT END OF TEST 42 GIVE RATE 1 CLEAR 2 CLEAR 2 CLOUDY		28-	28 29-31 32-34 35-33	11		
GPM       I/D       retr       retr       I/D       I/D       retr       I/D       retr       I/D       I/D<	C IF FLOWING. GIVE RATE	38-41 PUMP INTAKE	E SET AT WATER AT END OF TEST 42			
FINAL STATUS OF WELL STATUS OF WELL STATUS STA		PUMP TYPE RECOMMENDI PUMP	ED 43-45 RECOMMENDED 46-41 PUMPING	11		
FINAL       I M WATER SUPPLY       S		OW IN DEEP SETTING	200 FEET MALE 5 OF		3 BOL	
OF WELL + RECHARGE WELL DEWATERING		2 DOBSERVATION W	ELL 6 ABANDONED POOR QUALITY	Jac		
		A C RECHARGE WELL	DEWATERING		Rei	i i
33-36     1     DOMESTIC     S     COMMERCIAL       2     STOCK     4     MUNICIPAL       WATER     3     IRRIGATION     7     PUBLIC SUPPLY	WATER		6 🗋 MUNICIPAL	1		
USE	USE				1961	
\$7     1 CABLE TOOL     6 D BORING       METHOD     2 D ROTARY (CONVENTIONAL)     7 D DIAMOND	метно	I CABLE TOOL				
OF I DETTING CONSTRUCTION OF ROTARY (AIR) OF DRIVING DI DRIVING DI DIGGING OTHER DILLERS REMARKS LOT 12 DILLERS REMARKS		TION 4 🖾 ROTARY (AIR)	9 DRIVING		int la	101330
DRILLERS WEMARKS CONTRACTOR 59-62 DATE RECEIVED 63-68	NAME OF WE		WELL CONTRACTOR			EIVED 63-68 80
O ADDRESS TAL WATCH SUPPLY LTC. 1996 6 UNSPECTION INSPECTION	Capita	al Water Supply				UL Z 6 1991
NAME OF WELL TECHNICIAN		O Stittsville,	WELL TECHNICIAN S			
S S. Miller T0097	O S. Mil	DET CHNICIAN / CONTRACTOR	SUBMISSION DATE			
Koven DAY 20 MO 6 YR 91 0 CSSIE	1KK			<u></u>		FORM NO. 0506 (11/86) FORM

Do	ntario	Ministry		nent		Well Ta	ag No			d/or Print Below)	n	903 OI			ecord
Measureme	ents record				nperial			A1023	353	A1023	53		Page_		of
Well Owr	ner's Info											11/14			and the second
First Name		La			rganizatio Const	n ructio	n Li	td.		E-mail Addres	55			by We	Constructed
		t Number/Nam	ne)				Munic	cipality		Province	Postal Code		elephone N		
7715 F		ield Road	1	1000		Contract of	St:	ittsvi	lle	Ontario	K2S 1B6	0	513 836	<u>14</u> p	4
Address of	Well Locatio	on (Street Nun					Town				Lot	(	Concession		
Lot 18 County/Dist		Industria Dality	11 P	ark				st Car Town/Villag		- Huntley	8	Provinc	2 ce	Postal	Code
Ottawa	Carlet	ton					Ca	rp				Onta	irio		
UTM Coordi	8 3 1 8		0	No	thing 50174	10000000	Muni	cipal Plan	and Sublo	t Number		Other			
				ando			cord (	see instruct	tions on the	back of this form)				Den	th ( <i>m/ft</i> )
General Co	olour	Most Comm	ion Ma	aterial		Ot	ther M	Aaterials		G	eneral Description			From	To
Brown		Sandy S	Soil							I	oose			0	3.65
Grey		Till												.65	7.31
Grey		Limesto	one			Dark	Lay	ers		M	ledium			.31	106.06
-															
					Space		10.78			After text of wells	Results of W	11	d Testing aw Down		lecovery
Depth Se From	et at ( <i>m/ft</i> ) To				lant Used d Type)			Volume ( m³/l		After test of well y	and free	Time	Water Leve	I Time	Water Level
10.36	0	Grouted	i Be	nto	nite S	lurry		.526m	n <sup>3</sup>	Other, speci	fy itinued, give reason:	(min) Static	(m/ft)	(min)	(m/ft)
										n partieng access	initiation, give reason.	Level 1	1.31		11 01
										Pump intake set	at ( <i>m/ft</i> )	2	2.66		11.21
											.43	3	3.52		10.10
the second second second		nstruction				Well L				Pumping rate (V/ 27	nin / GPM) .3	4	4.29		9.14
	Conventional	Diamond		Doi No.		Munic			Vot used Dewatering	Duration of pum		5	4.85		8.24
Rotary (I	Revenued	Driving		Live		Coolir		ir Condition	Monitoring ning	_6hrs +_2 Final water level of	and of pumping (m/R	1.000	5.28		7.40
X Air percu					ustrial ier, <i>specify</i>						.76	15	7.02		4.48
		nstruction R	ecord	-				Status o	of Well	If flowing give ra	te (I/min / GPM)	20	8.20	-	3,20
Inside Diameter		e OR Material ed, Fibreglass,		all ness		oth ( <i>m/ft</i> )		Water Su Replacer			pump depth (m/ft)	25	9.07		2.68
(cm/in)		Plastic, Steel)		nvîn)	From	То	_	Test Hole	е	Recommended	pump rate	30	9.70		2.51
15.86	St	eel		48	+.45	10.36		Recharge		(1/min / GPM) 27	.3		10.19		2.30
		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -						Observat Monitorin		Well production	(I/min / GPM)	40	10.93	-	2.00
-								Alteration (Constru		Disinfected?		50	11.43		1.72
								Abandon Insufficie	ned, int Supply	X Yes No		60	11.74	60	
Outside		onstruction R				oth ( <i>m/it</i> )		Abandon Water Q		Please provide a	Map of W map below following			back.	
Diameter (cm/in)	(Plastic, Ga	alvanized, Steel)	SIO	t No.	From	То		Abandon specify	ied, other,	KAL .	TRN	SRY	DRIVE	1	
							Г	Other, st	pecify		1				
												Pit	OBWILLAN	00	
Water four	nd at Depth	Water Det Kind of Wate		resh	VUnteste	d De	Hole	e Diamete m/ft)	b <b>r</b> Diameter			• 11	0 P		20
101.44	A/ft) Gas	Other, spe	cify_			From	1	To	(cm/in)		1			0	2
		Kind of Wate		resh	Unteste	1.5.1.5.5.5		10.36			1			1	
Water four	nd at Depth	Kind of Wate	r: 🗌 F	resh (	Unteste	d 10.30	6 10	06.06	15.23		1			- 3	
(1		Other, spe	-	Mall	Taabaia	- Inform	antion							M	:
Business N	spectra in the second second second second second	Il Contractor	or and	vven	Technic	1.		n contractor's L	Licence No.					1	
-		er Supply		d.			1 Munic	5	5 8	Comments:					
Box 4		Cor Humber/148	arie)					ittsvi	lle	Commenta.					
Province		Postal Code	B		E-mail A		1	tor		Well owner's D	ate Package Deliver	red	Mini	stry He	e Only
	one No. (inc.			Well 7	echnician	Capita. (Last Nam				information			Audit No.		
	36 1766	No. Signatuyé			, Ste		Data	Submelt		delivered	ate Work Complete	d	A DECEMPTOR OF A DECEMPTOR		704
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(C) Ontorio	Ministry of	Well Tag Number (P	ace sticker and pri	int number below)	]	Wall F	Record		
(V) Ontario	the Environment	H019	894	Regulation 903 Ontario Water Resources A					
Instructions for Comp	-		18947	document D	lease retain for future refer		of		
<ul> <li>All Sections must be</li> </ul>	completed in full to ave	oid delays in process	ing. Further	instructions and	d explanations are available on the second sec	n the back o	f this form.		
<ul> <li>All metre measuren</li> </ul>	nents shall be reporte blue or black ink only.	d to 1/10 <sup>th</sup> of a metr	e.		Ministry Use Only				
Well Owner's Informat		Well Information	MUN			LOT	O1		
	CARLETON	7	Hun City/Town/V	JTLEY .	Site/Compartment/		tc		
GPS Reading NAD	E CREEK Zone Easting	K Northing	Unit Make/	$\mathcal{Q}$	PLAN 4R-1	7169,4	113		
8∣3 Log of Overburden an	Bedrock Materials	5017086 (see instructions)	MASE	IAN	Differentiated		-		
General Colour Most com	mon material	Other Materials		Genera	I Description	Depth From	Metres To		
CLA	VEL			<u></u>		0	4.06		
GREYBLACK	LIMESTONE					3,18	24.38		
<b>*</b>						-			
					······································				
	· · · · · · · · · · · · · · · · · · ·					· · · · · · · · · · · · · · · · · · ·			
Hole Diameter Depth Metres Diame	eter Inside	Construction Re Wall	cord Depth	Metres		Down F	Recovery		
From To Centime	centimetres	erial thickness centimetres	From	То	JUDPUM min	ater Level Time Metres min			
0 97.0 12:		Casing			Pump inteke setar Static (metreen) - Static Level Pumping rate - 1	17 -12 1	1.34		
Water Record			0	6.70	(litres/min)	A 2	4.09		
Water found Kind of Wat	er Steel	Fibreglass			hrs +0 min	<b>2</b> 0 3	4.00		
Gas Salty Minu	rais	Concrete ed			of purpoint metres	54 4	392		
	hur Steel	Fibreglass Concrete			type. Shallow Deep Recommended pump 5	76 5	384		
Gas Satty Satty Other Fresh Sulp	Galvaniz	Screen		-	depth 21. 3 metres Recommended pump 10	<b>, , , , , , , , , , , , , , , , , , , </b>	312		
Gas Salty Min	erals Outside Steel	Fibreglass Slot No.			rate. (litres/mih) 15 If flowing give rate - 20	<b>3</b> 15 <b>3</b> 20	3.58		
After test of well yield, water w	as I 🖉 🔤	Concrete ed			(litree/min) 25 If pumping discontin- ued, give reason. 30	<b>34</b> 25 <b>31</b> 30			
Clear and sediment free		No Casing or So	reen	a. 79	ued, give reason.	<b>43</b> 40			
Chlorinated Yes No	Dpen ho	• •		24.38	60 6	60	▼		
Depth set at Metres Material a	d Sealing Record nd type (bentonite slurry, neat c	ement slurn/) etc Volu	Abandonment me Placed pic metres)	In diagram below Indicate north by	Location of Well v show distances of well from road,	lot line, and b			
609 0 NEA	TCEMENTS	SWRRY .	227			(	NT		
	· · · · · · · · · · · · · · · · · · ·				1 a. Ou	۵			
				Carp Kean	Reio Dru	-			
	Method of Construct		7		anda	y)	· · · · · ·		
	percussion	Diamond [ Jetting [ Driving	Digging Other		21 03	TT-1K	M		
	Water Use	Public Supply	Other		- REFER	L			
Stock		Not used Cooling & air conditioning		Audit No. 7		ompleted			
Water Supply Rechar	Final Status of We		doned, (Other)	<u> </u>	I JU04 20 Interest information Date Deliver	20014-1			
Test Hole Abando	ned, poor quality	Dewatering Replacement well		package delivere		0004	600		
Name of Well Contractor AIR ROCK DRILL	Contractor/Technician	Well Contractor's	Licence No.	Data Source	Ministry Use Only Contractor	111	9		
Rusiness Andress (street name	number, city etc.) H MOND, OM	- KOR22	0	Date Received		ection YYYY	MM DD		
Name of Well Technician (last na	me, first name	Well Technician's		Remarks	6 2004 Well Record				
Signature of Technician/Contrac		Date Submitted	- <b>11</b> -12		1	53518	88		
0506E (09/03)	Contractor's C	opy 📋 Ministry's Copy	X Well Owr	ner's Copy	Cette formule e	est disponible	en français		

Ontario	
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Ministry of the Environment

Well Tag No. (Place Sticker and/or Print Below)

UP On	ntario	the En	vironment			A123489	Tag#:	: A123	489 tior	903 C			ources Act
Measuremer			letric 🗌	Imperial			149	_ p	j		Page_		of
Well Owne	er's Info		ast Name /	Organizatio	2		E mc	ail Address					
Crawf I	nvesti		ast Name /	organization	,		C-1116	all Autress					Constructed
Mailing Addre	ess (Stree	t Number/Nan	ne)	****	1	Municipality	Provi		Postal Code	-	Telephone N		· · · · ·
3038 Ca Well Locati		ad				Carp	Un	tario	KOA 1I	<u>'</u> U	613 223	3 119	<u>17      </u>
		on (Street Nun	nber/Name)	)	•	Township			Lot		Concession		
2710 Ca						West Carleto	n - Hun	tley					
County/Distri Ottawa					(	City/Town/Village Carp				Provin Ont:		Postal	Code
UTM Coordina		Easting	1	orthing	1	Municipal Plan and Sul	olot Number			Other			
NAD 8		8 42309		501700									
General Cold	· · · · · · · · · · · · · · · · · · ·	Most Comm				ord (see instructions on t	he back of thi		ral Description				th ( <i>m/ft)</i>
Brown												From	To
Grey		Soil Till			Sto	nes		Wet Pack	rođ			0	1.21
			1										
Grey		Grave			<b>D</b>	1 Т		Pack				6.09	+
Grey		Limes	tone		Dar	k Layers		Medi	_um			/.61	68.57
						<u></u>							
Depth Set a	at ( <i>m/ft</i> )		Annular Type of Sea			Volume Placed	After test	of well yield,	Results of We water was:		d Testing aw Down	R	ecovery
From	To		(Material ar	nd Type)		( <i>m³/ft³</i> )		ar and sand fi er, <i>specify</i>	ree	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
9.44	0	Grouted	Cement	t & Ben	tonite	•43m <sup>3</sup>			ed, give reason:	Static			((11/11)
									a, give reason.	Level	3.25		/ 10
							Dump inf	take set at (r	n/#)	1	3.45	1	4.12
								30.47	<i>iuny</i>	2	3.55	2	4.01
Metho	d of Cor	nstruction			Well Us	se	Pumping	rate (I/min /	GPM)	3	3.61	3	3.97
Cable Tool		Diamond	Du Pu		Comme	ercial 🔲 Not used	Duration	54.6 of pumping		4	3.64	4	3.90
X Rotary (Col		)  U Jetting Driving		imestic vestock	Municip		1 I I I I	nrs + r	nin	. 5	3,68	5	3.87
Boring			🗌 Irri	gation		& Air Conditioning	and a statement of the	er level end a	f pumping (m/ft)	10	3.82	10	3.73
Air percuss			e da la tradición de la companya de	lustrial her, <i>specify</i> _			Ifflowing	4.45 give rate (//r		15	3.90		3.70
	Cor	nstruction Re	ecord - Ca	sing		Status of Well		l give late (m		20			
Inside Diameter		e OR Material d, Fibreglass,	Wall Thickness	Depth	n ( <i>m/ft</i> )	X Water Supply	Recomm		o depth (m/ft)		3.94		3.64
	Concrete,	Plastic, Steel)	(cm/in)	From	То	Replacement Well	Pocomm	15.23 nended pump	, rato	25	3.99	25	3.61
15.86	Ste	eel	.48	+.45	9.44	Recharge Well     Dewatering Well	(l/min / G			30	4.05	30	3.58
· .						Observation and/or	Well prod	duction (I/mir	1 / GPM)	40	4.00	40	3.54
						Monitoring Hole	Disinfecte	- 10		50	4.53	50	3.51
						(Construction)		No		60	4.45	60	3.49
	Cc	onstruction Re	ecord - Scre	en		Insufficient Supply			Map of W	ell Loc	ation		
Outside Diameter	Ma	aterial	Slot No.	T	n ( <i>m/ft</i> )	Water Quality	11 '	rovide a map	below following	instruct	ions on the b	ack.	
(cm/in) (	Plastic, Ga	Ivanized, Steel)	0.01140.	From	То	Abandoned, other	1 5	J					
						Other, specify	.   ^	¢r.				η!	
											L	1   0	
		Water Det				Hole Diameter			1 1 A	+27	10	a	
		Kind of Water		XUntested	Dep From	oth ( <i>m/ft)</i> Diamete To ( <i>cm/in</i> )	r		nee eestimate e			-	
		Other, spe Kind of Water		<b>X</b> Untested	0	9.44 15.8	6				$\square$	1	
		Other, spe			9.44				il /		) /		
Water found	at Depth	Kind of Water	r: Fresh		<b>7.44</b>	00.57 15.2					·	*	
(m/fi	******	Other, spe		Teebnicia	n Informa			ang mga panang mga nang katalan sa					
Business Nar		and the second se	anu wel			ell Contractor's Licence No	).	CAR	er RA	0.0	#5		
-		r Supply				1 5 5 8							
Business Add Box 490		et Number/Na	me)			unicipality Stittsville	Commen	us:					
Province	P	ostal Code		s E-mail Add	lress				0/11/0/11/12/00/11/00/22/11/11/20/02/20/21/00/20/00/11/00/20/20/20/20/20/20/20/20/20/20/20/20/		provement of the second		
Ontario	5	2 S 1 A				lwater.ca	Well own informatic		Package Delivere			try Use	
Bus.Telephone No. (inc. area code)       Name of Well Technician (Last Name, First Name)         6       1       3       8       3       6       1       7       6       6       Miller, Stephen					package delivered	2 0	1 4 0 9	1 8		18	8563		
		No. Signatu/e				ate Submitted	X Yes	Date V	Nork Completed				
0 0	9	1 Ally	hria	$\sim 1$	2	2 0 1 4 0 9 1	8 No .	2 0	1 4 0 9	1 7	-ner	42	2814
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(V) Ont	Ario Ministry of the Environmer	nt i					Ontario Wat WATER W		
Print only in space Mark correct box	es provided. with a checkmark, where	applicable.	$\begin{bmatrix} 11\\ 1 \end{bmatrix}$	1	5321	09	Municipality 1510:05 10		22 23 24
County or District	ur Culet		Township/Borough/A	City/Town/Villa	netcn ADH/AI	KTH-	Con block tract Han HM 3C8 Date comp	145 H	ot 25-27 H J / O 7 2 0 3 9 month year
21							Basin Code		iv
			BURDEN AND BI		TERIALS (s		ns)		th - feet
General colour	Most common materia	U 	Other materia	. <u></u>				From	To
gray	Gravel							18'	19'
gray		estone						19'	260
			······································						
						······			
31 32				⊥⊥┙└⊥⊥ ┷╍┙└ <sub>┶╍┺</sub>		<u></u>			
	R RECORD	51 CAS	ING & OPEN HO Wall		<b>)</b> th - feet	Sizes of of Slot No.)	pening <sup>31-33</sup> Di		ngth <sup>39-4</sup>
at - feet	Kind of water	10-11 1 ESt	laterial thicknes inches leel <sup>12</sup>	ss From	To 13-16	Material an	nd type	inches Depth at top	fee o of screen 41-44
	Salty <sub>6</sub> ⊡ Gas		alvanized oncrete pen hole	80	25				feet
	4 ☐ Minerals 3 Salty 6 ☐ Gas 3 Sulphur 24	<sup>17</sup> 5 □ Pl <sup>17-18</sup> 1 □ Sl 2 □ Gi	astic	-	20-23		PLUGGING & SEA	ALING RECOR	
2 [	3 Salty 6 ☐ Gas	3 🗋 Ca 4 🗋 O 5 🗌 Pi	oncrete pen hole lastic			From 25 <sup>13</sup>	To Material and t	ype (Cement grout, I	
2 [ 30-33 1 [	A         Minerals           Salty         6         Gas           Fresh         3         Sulphur         34           Salty         6         Gas           Salty         6         Gas	3 🗆 🗘	alvanized oncrete pen hole		27-30	18-21 26-29	22-25 30-33 80	₩ Gra K	
71 Pumping test n	nethod <sup>10</sup> Pumping rate		tion of pumping 15-16 17 Hours Mir	18 IS	In diagram		ATION OF WELL distances of well	from road and k	ot line
	Vater level and of pumping 22-24 15 minutes of 25 22-24 15 minutes of 25 22-24		ping 2 Recover	<u> </u>	Indicate n	orth by arrow			
	260 125 feet	62 <sub>feet</sub> =	R feet S	ieet				/	î (
SNI flowing give a	GPM	feet	r at end of test					۱	N
Hecommended □ Shallow	pump setting		np rate	<sup>6-49</sup>					
50-53				ᅴ님					
1 Water su 2 Observat 3 Test hole 4 Recharge	on well <sup>6</sup> Abandoned, <sup>7</sup> Abandoned (	poor quality 1	<ul> <li>9 □ Unfinished</li> <li>10 □ Replacement well</li> </ul>						
WATER-USE	55-56 5 🖸 Commercial 6 🖸 Municipal		9 🗌 Not use		$\cap$	iro Rd.			
3 🗌 Irrigation 4 🗌 Industrial	7  Public supply 8  Cooling & air	у				<u> </u>	1 A		
		20	9  Driving	V    V		on the	<u>v</u>		
<ul> <li><sup>2</sup> Cable to:</li> <li><sup>2</sup> Rotary (c</li> <li><sup>3</sup> Rotary (r</li> <li><sup>4</sup> Rotary (a)</li> </ul>	onventional) <sup>6</sup> 🗍 Boring everse) <sup>7</sup> 🗍 Diamond	1	Digging     Other	0tture			Ree	223	516
Name of Well Cont		M	Vell Contractor's Licence		ata	58 Contractor		ate received	63-68
George Address	H Lants	mud	3325			<u> </u>		<u>JUL 102</u>	2001
Address (		<u> </u>	0000	<u>  </u>      ''	ate of inspection		nspector		
Aduress Box Name of Well Tech	55 Calabogi	e, Ort H	OT-1HO		ate of inspection emarks		nspecioi	CSS.I	

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Well Record Ministry of Well Tag No. (Place Sticker and/or Print Below) Ontario the Environment Regulation 903 Ontario Water Resources Act Imperial Page of Measurements recorded in: Metric Well Owner's Information CO L Well Constructed Last Name Organization First Name 45 Municipality ee Va er Province Mailing Address (Street Number/Name) iec. area code) NO tte #965 e et nod Well Location Concession Township Address of Well Location (Street Number/Name) N # 10 0 DR Postal Code Province City/Town/Villa esto Ontario Northing Municipal Plan and Sublot Number Other UTM Coord NAD 8 3 8 42 3015 50 (17 39 2 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) 842 Depth (nott) Most Common Material Other Materials General Description General Colour From Nell ABANDONM er 801 -NV DE F (( if 2108242 Tag # 21682 MOE SAR ved3 NP **Results of Well Yield Testing** Annular Space Type of Sealant Used (Material and Type) Volume Placed (m3/ft3) Draw Down Recovery After test of well yield, water was: Depth Set at (m/ft) Time Water Level Time Water Level From Clear and sand free To (min) Other, specify (m/ft) (min) (m/ft) 1 0 Statio If pumping discontinued, give reason: Level 1 1 Pump intake set at (m/ft) 2 2 3 3 Pumping rate (I/min / GPM) Well Use Method of Construction 4 4 Diamond Public Not used Commercial Cable Tool Duration of pumping Rotary (Conventional) Jetting Domestic Municipal Dewatering 5 5 hrs + Driving Test Hole Monitoring Rotary (Reverse) Livestock Final water level epd of pumping (m/R) Boring Digging Irrigation Cooling & Air Conditioning 10 10 Air percussion Industrial Other, specify Other, specify 15 15 If flowing give rate (Vmin / GPM) **Construction Record - Casing** Status of Well 20 20 Inside Diamete Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Wall Thickness Depth (m/ft) Water Supply Recommended pump depth (m/ft) Replacement Well 25 25 From To (cm/in) (cm/in) Test Hole Recommended pump rate (Vmin / GPM) 30 30 Recharge Well Dewatering Well 40 40 Observation and/or Well production (Vmin / GPM) Monitoring Hole 50 50 Alteration (Construction) 60 60 No Abandoned, Insufficient Supply Construction Record - Screen Map of Well Location Abandoned, Poor Please provide a map below following instructions on the back. Outside Depth (m/ft) Water Quality Material Diameter (cm/in) Slot No Abandoned, other, vanized. Steel) (P) Fron То NSCENBL £ Hole Diameter Water Details Depth (m/ft) Diameter Water found at Depth Kind of Water: Fresh Untested From То (cm/in) (m/ft) Gas Other, specify Water found at Depth Kind of Water: Fresh Untested eis Dri (m/lt) Gas Other, specify Water found at Depth Kind of Water: Fresh Untested (m/ft) Gas Other, specify Well Contractor and Well Technician Information ractor's Licence No of Well ( Well Con C (Street Number/Name) 111 D 00 Comments: Municipality ICHMOND # Postal Code Business E-mail Address Well owner's Ministry Use Only Date Paskage Delivered off -0 information Il Technician (Last Name, First Name Audit No package delivered 08234 1 iers 520 10 Pu In Date Work Completed Yes 2 2 2010 1000009 010031 5 No @ Queen's Printer for Ontario, 2007 0506E (12/2 **Ministry's Copy** 

Ministry of Well Record Well Tag No. (Place Sticker and/or Print Below) **Intario** the Environment Regulation 903 Ontario Water Resources Act Measurements recorded in: 🗌 Metric 🕅 Imperial Page of Well Owner's Information Last Name / Drganization First Name E-mail Ad Well Constructed 5 ee 1 0 00 965 Province Ma Municipa area code) the NO Well Location Address of We Location et Number/Na Concess H 10 0 nty/District/I City/Tow Province Postal Code nicipality p Ontario 11 R 0 oordinates Zone Easting No Municipal Plan and Sublot Number Other 8 50 4 Bolt 17392 2 NAD 83 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) Depth (m/ft) Most Common Material Other Materials General Description General Colour From HBANDON Vo 142 ME (1 0 90 AC. 20 90 29-# 21682 MOE d Di lling-June 23 DO00M Results of Well Yield Testing Annular Space Depth Set at (m/ft) Volume Placed After test of well yield, water wa Draw Down Recovery ype of Sealant Used From (Material and Type) (m3/ft3) Clear and sand free Time Water Level Time Water Level (min) Other, specify (m/n)(min) (m/ft) Q 90 42 Static If pumping discontinued, give reason: Level 101 1 1 Pump intake set at (m/it) 2 2 3 3 Pumping rate (I/min / GPM) Method of Construction Well Use 4 4 Cable Tool Diamond Public Commercial Not used Duration of pupping Domestic Rotary (Conventional) Municipal Jetting Dewatering 5 hrs 5 min Rotary (Reverse) Driving Test Hole Monitoring Livestock Bo Digging Irrigation Cooling & Air C ditioning Final water level end of pumping (m/it) ing 10 10 Industrial
Other, specify Air perc ussion Other cify 15 15 If flowing give rate (I/min / GPM) **Construction Record - Casing** Status of Well 20 20 Inside n Hole OR Material Wall Depth (m/ft) Water Supply Recommended pump depth (Mit) Thickness nized, Fibreglass, e, Plastic, Steel) Replacement Well 25 25 From To (cm/in) (cm/in) Test Hole Recommended pump rate (Vmin / GPM) 30 Recharge Well 30 Dewatering Well 40 40 Observation and/or Well production (Umin / GPM) Monitoring Hole 50 50 Alteration (Construction) 60 60 Abandoned, Insufficient Supply No Map of Well Location Construction Record - Screen andoned, Poor Manager angelite Please provide a map below following instructions on the back Outside Depth (m/ft) Material Diamete (cm/in) Slot No (Plastic, Galvanized, From To est Int M Other specify Hole Diameter Water Details Depth (m/ft) Water found at Depth Kind of Water: Fresh Untested Diameter (cm/in) From Gas Other, specify (m/te Water found at Depth Kind of Water: Fresh Untested (m/ft) Gas Other, specify ReisDr found at Depth Kind of Water: Fresh Untested (m/ft) Gas Other, specify Well Contractor and Well Technician Information ss Name of Well Contrac Well Contractor's Licence No ECKDR 11 11 1No ress (Street Number/Name) Municipality Comments icthon 0 Postal Code Business E-mail Address KDADZO Well owner information Ministry Use Only Date Name of Well Technician (Last Name, First Name none No. (in area code) ackage 001 8242 38 2170 Desculmers **lelivered** C.Y chnician and/or ature o 8 2010 MAR No OOI 00120

Queen's Printer for Ontario, 2007

Ministry's Copy

093598 Ministry of Well T Below) Well Record Ontario the Environment Regulation 903 Ontario Water Resources Act 093598 Measurements recorded in: 🗌 Metric Imperial Page of Well Owner's Information First Name Last Name / Organization Durrell ovince, Postal Well Constructed lla Corf totalings 00 by Well Owner hone No. (inc. area code) 965 Modile KƏR all 144 ve Well Location Address of Well Location (Street Number/Name) Lot Concession ete 8 County/District/Municipa 21 NE #9 arp er City/Town/Village Postal Code Province to Ontario 05 Municipal Plan and Sublot Numbe asting Other NAD 83 8422847 5017220 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) Depth (10th) General Colour Most Common Material Other Materials General Description From say ( 0' Bridders A 19' mests 32. 30 6 R Annular Space **Results of Well Yield Testing** er test of well vield, water was ype of Sealant Used Draw Down Depth Set at (n/ft) olume Placed Recovery (Material and Type) Time Water Level Time Water Level Other apeally STE (min) (m/ft) (m/ft) 96 (min) 01 un scontin Statie 34 92'6" If pumping 9174 1 1 891 Pump intake set at (n(/t)) 3'8" 2 76'4" 2 80 3 '2" 371'6" ng rate (Vmin / GPM) 16 Method of Construction Well Use 8 U.S. 469'2" Diamond 19'4" 4 Cable Tool Public Commercial Not used Duration of pumping Rotary (Conventional) Jetting Comestic Municipal Dewatering hrs +O min 55944 525'3" Rotary (Reverse) Driving Livestock Monitoring Test Hole Final water level end of pumping (m/ft) Irrigation Boring Digging Cooling & Air Conditioning 10 27 10 48' 6" Air percussion Industrial 48'4" Other, specify Other, specify 15 15 357 **Construction Record - Casing** Status of Well Water Supply Replace 2058'4 20 C 31 Recommended pump depth (6/11) Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Inside Wall Depth (m/ft) Diamete (cm/in) Thickness 5'6" Replacement Well 256 25 7'2" From To 74) (cm/in) Test Hole CEM 4 stel 3070 191 Recharge Well 30 12'5 188 0 54 Dewatering Well 6 (1 nolo 4082'5 40 34 Observation and/or 54 Nell production (I/min (GPM) 6 Monitoring Hole 33 Alteration (Construction) 50 3 50 9 infected? C. Abandoned, Insufficient Supply Ves 🗌 No 604 60 Map of Well Location **Construction Record - Screen** Abandoned, Poor Outside Depth (m/ft) Water Quality Please provide a map below following instructions on the back Material (Plastic, Galvanized, Steel) Diameter (cm/in) Slot No Abandoned, other, From To specify Other, specify Water Details Hole Diameter Water found at Depth Kind of Water: Fresh Ontested Depth (m/ft) Diameter (cm/in) 7 (m(ft)) Gas Other, specify \_\_\_\_\_\_\_ From To DA (( Water found at Depth Nind St. Specify 1 320 6 Water found at Depth Kind of Water: Fresh Untested Zeis Drive (m/ft) Gas Other, specify Well Contractor and Well Technician Information e of Well Well Contractor's Licence No KBRLL Street Number/Name) 1119 ING DC Municipality 0 Comments 40 ICHAMOND NOO # C es Postal Code Business E-mail Address Well owne Ministry Use Only ackage D information Audit No. 2 108268 echnician (Last Name, F 2003 (023 age URCE 217 ered Date Work Con MAR 2 2 2010 Contracte 2009122 No 2010000 Ministry's Copy

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093680 Below) Well Ministry of Well Record Ontario the Environment Regulation 903 Ontario Water Resources Act 3680 mperial Measurements recorded in: 
Metric Page of Well Owner's Information First Name Last Name / Organiz E-mail Address F 0 Mailing Address (Street Postal Cod Maj umber/Name) rovince Ð ve ib NOC DI 1 Well Location Address of Well Location (Street Number/Name 4 0 P DA County/District/Mur Province Postal Code ipality Ontario 6 0 Municipal Plan and Sublot Number Other 741 50 NAD 83 Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form) Depth (m/ft) Most Common Material General Colour Other Materials General Description From 40 V ( 10 Na 1 00 ante 500 Annular Space **Results of Well Yield Testing** After test of well y Descard se Differ appendix ype of Sealant Used (m<sup>3</sup>/R<sup>3</sup>) Depth Set at (m/ft) water was Draw Down Recovery (Material and Type) Time Water Level (min) (m/ft) Time Water Level nd free 7.8 (min) (m/ft)  $\mathcal{F} \in$ 41 Static ed, give re 1124" Level 16.8 112'8" 82.6 1 Pump intake set at (m 222'6" 2 16' 40 3 688" in / GPM Pumping rate (il Method of Construction Well Use 2 0 81 3" 4 34 Cable Tool Diamond Public Commercial Not used -Duration of pumpi Livestock Dewatering Rotary (Conventional) Jetting Municipal 5194 hrs + O min 50 5. Driving 2 Rotary (Reverse) Test Hole Monitoring al water level end of pumping (m/ft) Air percussion Digging Irrigation Cooling & Air Conditioning 18" 10 10 43 ing give rate (Vmin / GRM) Industrial Other, specify Other, specify ffloy 154 15 464 15 Construction Record - Casing Status of Well 20 281 14 Recommended pump depth (n/ft) Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Wall Thickness Inside Depth (m/ft) Water Supply Replacement Well 2584'5 (cm/in) 25 73'3' 40 From То (cm/in) Test Hole nded pump rate 18'4" e 4 30 +2' 30 91 Recharge Well 52 -188 (Vmin/GPM) 10 Dewatering Well 73'5" 52' 40 13'6" 400 4 60 Observation and/or KGEM Well production (Vmin 5 Monitoring Hole 50 053 8 50 2" Alteration fected? (Construction) 24 60 604 Abandoned, Insufficient Supply Yes 🗌 No Map of Well Location Construction Record - Screen Abandoned, Poor Please provide a map below following instructions on the back Outside Depth (m/ft) Water Quality Material Slot No. Diameter Galvanized, Steel) Abandoned, other, (Plastic (cm/in) From To specify Other, specify Water Details Hole Diameter Depth (m/ft) Water found at Depth Kind of Water: Fresh XUntested Diameter From (cm/in) 48 (mt) Gas Other, specify То ( 1) Water found at Depth Kind of Water: Fresh Ontested 160 6 (m(ft)) Gas Other, specify Water found at Depth Kind of Water: Fresh Untested (m/ft) Gas Other, specify Well Contractor and Well Technician Information Business Name of Well Contractor Well Contractor's Licence No. ¥ Lock ((( 3 0 NG 1 Municipality Comments: 1 Cetmon 1 8 Postal Code Busine Loffe Ministry Use Only 740 No, Name of nician (Last Name, First Name 08235 H PC ß 4 AL SER MI 10 Sol 22 0201 -(1 No 00100B C **Ministry's Copy** @ Queen's Printer for Ontario, 2007

## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX C TW1 WELL RECORD

MCINTOSH PERRY

Print only in spaces provided.

of the Environment ς.

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Ministry

Mark correct box with a checkmark, where applicable.

#### The Ontario Water Resources Act WATER WELL RECORD

1531859

County or District		Township/Borough/City/	-			Con blo	ck tract surve		Lot <sup>25-27</sup>
	ACLEVON	Address	n nun	letey			Date	1_	, 04 01 <sup>****</sup>
		60 Robertson	Rd.,	Nepean RC Eleva			completed	day iii	month year
21			24						
		F OVERBURDEN AND BEDR	OCK MA					1 -	
General colour	Most common material	Other materials			Gener	al description		From	pth - feet To
Brown	Hardpan	Boulders						0	14
Grey	hardpan	Boulders						14	28'6"
Grey	limestone	dark layers						28'6"	275
Grey	limestone							275	279
		· · · · · · · · · · · · · · · · · · ·		1					
				1				1	
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				+					
	1	<u> </u>		<u> </u>				<u> </u>	<u> </u>
31									
				<b>_]</b>		f opening	31-33 Diameter	34-38 Le	75 8 mgth 39-40
Water found at - feet	Kind of water	Wall Material thickness	Depth					inches	feet
275 10-13 1 5	Fresh 3 Sulphur 14 4 Minerals 6 1	inches 4 1 Steel <sup>12</sup> • 188	From	To <b>34</b> 13-16	N (Slot N H H H H Materia	al and type	I	Depth at to	p of screen 3
15.40	Saity 6 Gas	2 Galvanized 3 Concrete 4 Open hole							feet
11	☐ Fresh 4  ☐ Minerals ☐ Salty 6  ☐ Gas	5 🗆 Plastic		20-23	61		G & SEALING	RECOF	
	☐ Fresh <sup>3</sup> ☐ Sulphur <sup>24</sup> 4 ☐ Minerals 5 Salty 5 ☐ Gas	2 Galvanized	~	07r	Depth set	Ma	terial and type (Ce		
25-28 1	Fresh 3 Sulphur 29	5 🗆 Plastic	34	275	From 34	10	routed-c	_	(4)
30.92	Safty 6 □Gas	i 1 □ Steel <sup>26</sup> 2 □ Galvanized 3 □ Concrete		27-30	18-21	22-25	********		<u></u>
1	☐ Fresh 4 ☐ Minerals ☐ Salty 6 ☐ Gas	4 a X Open hole 5 D Plastic	275	279	26-29	30-33 80			
Pumping test m	nethod 10 Pumping rate 11	14 Duration of pumping							
71 1 😰 Pump 2	□ Bailer <b>4</b> GF			In diagram	below sho	DCATION O	of well from r	oad and	lot line.
	22-24 15 minutes 26-28 30 minutes 21 22 24 25 26 26 26 26 26 26 26 26 26 26 26 26 26	1         Pumping         2         Recovery           -31         45 minutes 32-34         60 minutes 35-37         35-37		Indicate no	orth by arro	ow.	00 ++	5	
g 11 (m)	122 82 56	37 27	===			<u> </u>			T
U 11 feet	Pump intake set at	eet         feet         feet           Water at end of test         42		Loi	t7	T [	Lots	?	11
Recommended p	pump type Recommended 44	eet Clear Cloudy H45 Recommended 46-49		الاسو					
□ Shallow	XDeep pump setting 260	eet GPM			、				e is
50-53	S OF WELL 54	· · · · · · · · · · · · · · · · · · ·			5	000		_	<u>IP</u> Z
<sup>1</sup> X Water sup <sup>2</sup> Observation	oply <sup>5</sup> 🗌 Abandoned, insufficier					š I		Γ	P
<ul> <li><sup>3</sup>          Test hole</li> <li><sup>4</sup>         Recharge</li> </ul>	7 Abandoned (Other)				**		Graces.	(	Ń
WATER USE	55-56					1	Ø 7/.	>	
1 🕱 Domestic 2 🗌 Stock	6 🗋 Municipal	9 🔲 Not use 10 🗌 Other	PLA	n		•		-	Forth
3 🗌 Irrigation 4 🗌 Industrial	7 D Public supply 8 D Cooling & air condition	ing	LR	3702		28	a la	Re	onet
	CONSTRUCTION 57					[ (		· · · · ·	<b>٦</b> <sup>0</sup>
2 🗌 Rotary (co		<ul> <li><sup>9</sup> Driving</li> <li><sup>10</sup> Digging</li> <li><sup>11</sup> Orbital</li> </ul>				ł			
<sup>3</sup> □ Rotary (re <sup>4</sup> 🕱 Rotary (ai		11 🗌 Other					X	230	0073
Name of Well Contr	ractor	Well Contractor's Licence No.			se Contractor	<b>R</b>	59-62 Date rece	eived	63-68 80
	Nater Supply Ltd.	1558			]	558	MAY		2001
Address			O Date	of inspection		Inspector			
Box 490, Name of Well Tech S. Miller	<u>Stittsville, ON. K2</u>	5 1A6 Well Technician's Licence No.	Ď ≿ Rem	arks		1		~	SS.ES1
P. Stanto	n	T0086	ATT SINIM NINIM					U.	33.E3 I
Signature of Techni	ician/Contractor	Submission date day30 mo 04 yr 01	NIW						
2 MINUS	TRY OF THE ENVIRONM		<u> </u>					0506 (07	/00) Front Form

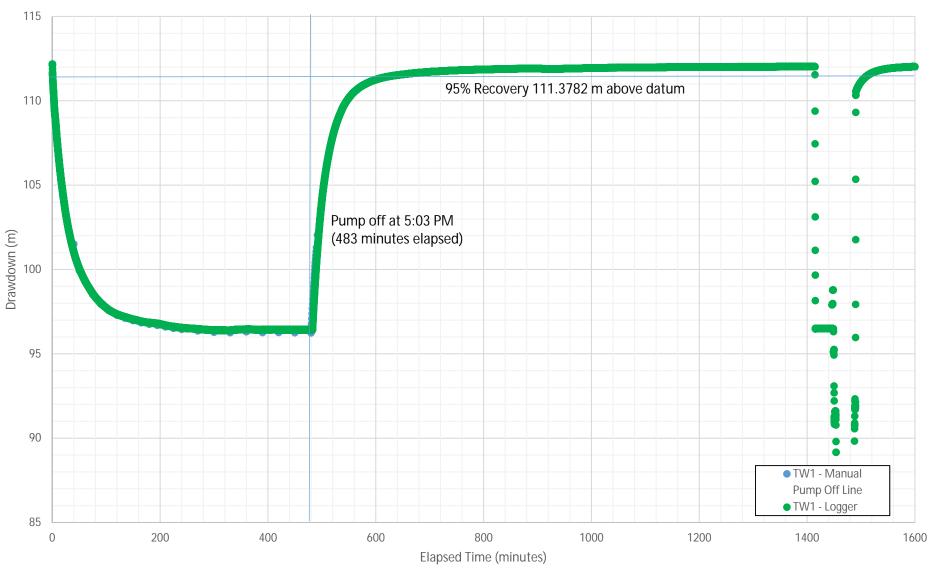
## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



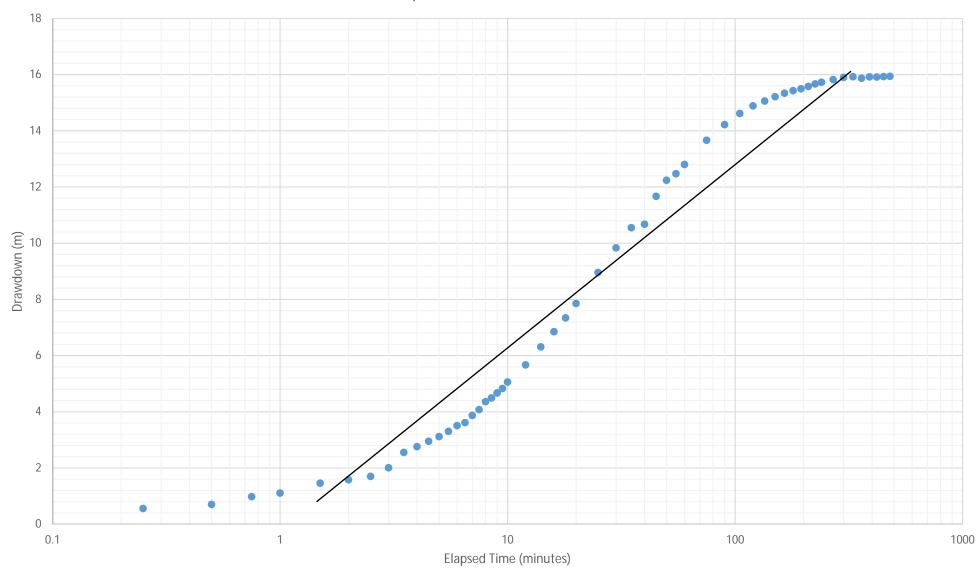
APPENDIX D WATER LEVEL DATA AND PUMPING TEST ANALYSIS

MCINTOSH PERRY

### Drawdown vs Time TW1 (NCM Well) Pumping Test, February 25, 2019 220 Maple Creek Court, Ottawa, ON



## Drawdown vs Log Time (Drawdown Phase) TW1 (NCM Well) Pumping Test (Drawdown), February 25, 2019 200 Maple Creek Court, Ottawa, ON



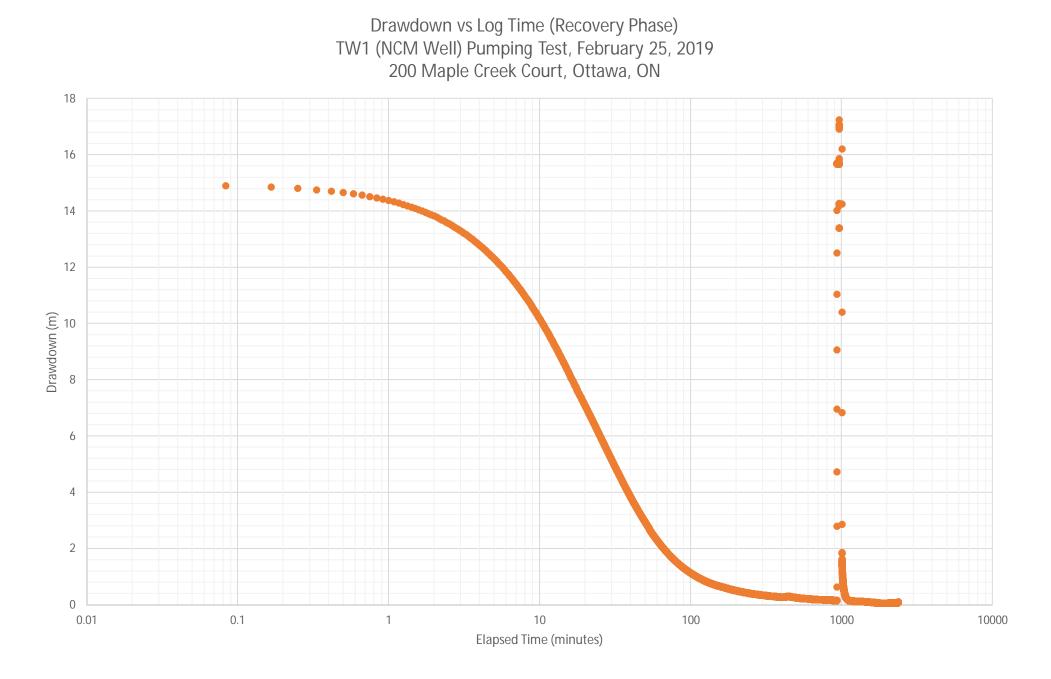
#### **COOPER-JACOB ANALYSIS for Constant-Rate Pump Tests**

Project Nar Project Nur Well:	nber: C	ydrogeological Assessn P-18-0512 <b>W1</b>	nent - 200 Map	le Creek Cou	ırt
Date:	25-Feb-19	Test	1 of 1		
Pumping Ra Duration of r:		<ul><li>11.36 L/min</li><li>483 minutes</li><li>0.079 m</li></ul>	(radius of wel		m <sup>3</sup> /day rzed from pumping well)
A best-fit lin The best-fit	e is drawn throu line is drawn thr	l being analyzed are plo ugh a representative por rough the data between ilysis, derivative analys	tion of the data 45	a. and	awdown vs. log time) 367 minutes
The slope ar $\Delta h$ : $t_0$ :	nd intercept of the <b>15.936</b> m		below: of drawdown o trapolated to a		•
Transmissiv	ity and Storativi	ty are calculated using	the Cooper-Jac	ob equation,	as given below:
	$T = \frac{2.303Q}{4\pi\Delta h}$	S = 2.24	$459\frac{Tt_0}{r^2}$		
<b>T:</b> (storativity i	0.2 m s typically not c	<sup>2</sup> /d alculated for fractured-	S: rock aquifers)	0	(dimensionless)
Hydraulic C	onductivity (K)	can be calculated by di	viding Transmi	ssivity by Ac	quifer Thickness (b).

For a thickness of b = 74.676 m, K = 2.9E-08 m/s

#### **Comments:**

Aquifer thickness of 74.676 m corresponds to open hole in bedrock below casing (casing to 10.36 m BGS, stickup of 0.6 m, WL at 3.35 m BTOC, end of hole at 85.04 m BGS)



## HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX E LABORATORY CERTIFICATES OF ANALYSIS

MCINTOSH PERRY

😫 euro	fins	Certificate of Analysis		
	Environment Testing			
Client:	McIntosh Perry Consulting Engineers Ltd. 115 Walgreen Rd., R.R. #3 Carp, ON K0A 1L0		Report Number: Date Submitted: Date Reported:	1901504 2019-01-31 2019-02-03
Attention: PO#:	Mr. Daniel Arnott		Project: COC #:	CP-18-0512 71572
Invoice to:	McIntosh Perry Consulting Engineers Ltd.	Page 1 of 3		

**Dear Daniel Arnott:** 

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

**Report Comments:** 

APPROVAL:

Dragana Dzeletovic, Team Leader

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <u>http://www.cala.ca/scopes/2602.pdf</u>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# **Environment Testing**

Client:	McIntosh Perry Consulting Engineers Ltd.
	115 Walgreen Rd., R.R. #3
	Carp, ON
	K0A 1L0
Attentic	n: Mr. Daniel Arnott
PO#:	
Invoice	to: McIntosh Perry Consulting Engineers Ltd.

🛟 eurofins

Report Number:	1901504
Date Submitted:	2019-01-31
Date Reported:	2019-02-03
Project:	CP-18-0512
COC #:	71572

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1409420 Water 2019-01-30 TW1-1 Bacti
Group	Analyte	MRL	Units	Guideline	
Microbiology	Escherichia Coli	0	ct/100mL		0
	Faecal Coliforms	0	ct/100mL		0
	Faecal Streptococcus	0	ct/100mL		0
	Heterotrophic Plate Count	0	ct/1mL		19
	Total Coliforms	0	ct/100mL		1

Guideline =

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted. **Analytical Method: AMBCOLM1** additional QA/QC information available on request.

## **Environment Testing**

Client:	McIntosh Perry Consulting Engineers Ltd.
	115 Walgreen Rd., R.R. #3
	Carp, ON
	K0A 1L0
Attention:	Mr. Daniel Arnott
PO#:	
Invoice to:	McIntosh Perry Consulting Engineers Ltd.

🛟 eurofins

 Report Number:
 1901504

 Date Submitted:
 2019-01-31

 Date Reported:
 2019-02-03

 Project:
 CP-18-0512

 COC #:
 71572

#### QC Summary

Analyte	Extraction/Analysis Dates	Blank	QC % Rec	QC Limits
Run No 360189	Analysis/Extraction Date 20	019-02-01 <b>Analyst</b> D	RA	
Method AMBCOLM1				
Escherichia Coli	2019-02-01 / 2019-01-31			
Faecal Coliforms	2019-02-01 / 2019-01-31			
Faecal Streptococcus	2019-02-02 / 2019-01-31			
Total Coliforms	2019-02-01 / 2019-01-31			
Method SM9215D				
Heterotrophic Plate Count	2019-02-02 / 2019-01-31			

Guideline =

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted. **Analytical Method: AMBCOLM1** additional QA/QC information available on request. MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

euro 🕏	fins	Certificate of Analysis		
	Environment Testing			
Client:	McIntosh Perry Consulting Engineers Ltd. 115 Walgreen Rd., R.R. #3 Carp, ON K0A 1L0		Report Number: Date Submitted: Date Reported: Project:	1901532 2019-01-31 2019-02-06 CP-18-0512
Attention: PO#:	Mr. Daniel Arnott		COC #:	71572
Invoice to:	McIntosh Perry Consulting Engineers Ltd.	Page 1 of 5		

#### **Dear Daniel Arnott:**

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

**Report Comments:** 

APPROVAL:

Addrine Thomas, Inorganics Supervisor

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: <u>http://www.cala.ca/scopes/2602.pdf</u>.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

# Environment Testing

Client:	McIntosh Perry Consulting Engineers Ltd.
	115 Walgreen Rd., R.R. #3
	Carp, ON
	K0A 1L0
Attention:	Mr. Daniel Arnott
PO#:	
Invoice to:	McIntosh Perry Consulting Engineers Ltd.

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Report Number:	1901532
Date Submitted:	2019-01-31
Date Reported:	2019-02-06
Project:	CP-18-0512
COC #:	71572

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1409523 Water 2019-01-30 TW1-1
Group	Analyte	MRL	Units	Guideline	
Anions	Cl	1	mg/L	AO 250	64
	F	0.10	mg/L	MAC 1.5	0.93
	N-NO2	0.10	mg/L	MAC 1.0	<0.10
	N-NO3	0.10	mg/L	MAC 10.0	<0.10
	SO4	1	mg/L	AO 500	34
General Chemistry	Alkalinity as CaCO3	5	mg/L	OG 500	219
	Colour	2	TCU	AO 5	<2
	Conductivity	5	uS/cm		642
	рН	1.00		6.5-8.5	8.10
	\$2-	0.01	mg/L	AO 0.05	2.13*
	TDS (COND - CALC)	1	mg/L	AO 500	417
	Turbidity	0.1	NTU	AO 5.0	17.9*
Hardness	Hardness as CaCO3	1	mg/L	OG 100	195*
Indices/Calc	Ion Balance	0.01			0.93
Metals	Са	1	mg/L		42
	Fe	0.03	mg/L	AO 0.3	0.54*
	K	1	mg/L		5
	Mg	1	mg/L		22
	Mn	0.01	mg/L	AO 0.05	0.02
	Na	2	mg/L	AO 200	55
Subcontract-Inorg	DOC	0.5	mg/L	AO 5	1.7
	N-NH3	0.01	mg/L		0.11
	Phenols	0.001	mg/L		<0.001
	Tannin & Lignin	0.1	mg/L		<0.1
	Total Kjeldahl Nitrogen	0.1	mg/L		0.2

#### Guideline = ODWSOG

#### \* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted. Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# Environment Testing

Client:	McIntosh Perry Consulting Engineers Ltd.		
	115 Walgreen Rd., R.R. #3		
	Carp, ON		
	K0A 1L0		
Attention:	Mr. Daniel Arnott		
PO#:			
Invoice to:	McIntosh Perry Consulting Engineers Ltd.		

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Report Number:	1901532
Date Submitted:	2019-01-31
Date Reported:	2019-02-06
Project:	CP-18-0512
COC #:	71572

#### QC Summary

Analyte		Blank	QC % Rec		QC Limits	
Run No         360205           Method         C SM2120C	Analysis/Extraction Date 20	)19-01-31	Anal	lyst	AA	
Colour		<2 TCU			95	90-110
Run No 360221 Method C SM2130B	Analysis/Extraction Date 20	)19-01-31	0-01-31 Analy		AA	
Turbidity		<0.1 NTU			99	70-130
Run No 360264 Method M SM3120B-3	Analysis/Extraction Date 20	)19-02-01	Anal	lyst	SKH	
Calcium		<1 mg/L			98	90-110
Potassium		<1 mg/L			105	87-113
Magnesium		<1 mg/L			96	76-124
Sodium		<2 mg/L			108	82-118
Run No 360268 Method EPA 200.8	Analysis/Extraction Date 20	019-02-01	Anal	lyst	H_D	
Iron		<0.03 mg/L			95	91-109
Manganese		<0.01 mg/L			99	92.9-107
Run No 360322 Method C SM4500-S2	Analysis/Extraction Date 20	019-02-04	Anal	lyst	AET	
S2-		<0.01 mg/L			82	80-120

#### Guideline = ODWSOG

\* = Guideline Exceedence

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Results relate only to the parameters tested on the samples submitted. Methods references and/or additional QA/QC information available on request.

# Environment Testing

McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Rd., R.R. #3
Carp, ON
K0A 1L0
Mr. Daniel Arnott
McIntosh Perry Consulting Engineers Ltd.

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Report Number:	1901532
Date Submitted:	2019-01-31
Date Reported:	2019-02-06
Project:	CP-18-0512
COC #:	71572

#### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No         360349         Analysis/Extraction Date         20           Method         SM2320,2510,4500H/F	19-02-04 <b>Ana</b>	lyst AET	
Alkalinity (CaCO3)	<5 mg/L	103	90-110
Conductivity	<5 uS/cm	101	90-110
F	<0.10 mg/L	99	90-110
рН		100	90-110
Run No         360404         Analysis/Extraction Date         20           Method         SM 4110	119-02-06 <b>Ana</b>	llyst H_F	
Chloride	<1 mg/L	100	90-110
N-NO2	<0.10 mg/L	99	90-110
N-NO3	<0.10 mg/L	101	90-110
SO4	<1 mg/L	100	90-110
Run No         360443         Analysis/Extraction Date         20           Method         SUBCONTRACT P-INORG	19-02-01 <b>Ana</b>	l <b>yst</b> REE	
DOC	<0.5 mg/L	104	
N-NH3	<0.01 mg/L	98	
Phenols	<0.001 mg/L	100	69-132
Tannin & Lignin	<0.1 mg/L	100	
Total Kjeldahl Nitrogen	<0.1 mg/L	95	81-126

#### Guideline = ODWSOG

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted. Methods references and/or additional QA/QC information available on request. MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

#### Environment Testing

Client:	McIntosh Perry Consulting Engineers Ltd.
	115 Walgreen Rd., R.R. #3
	Carp, ON
	K0A 1L0
Attention:	Mr. Daniel Arnott
PO#:	
Invoice to:	McIntosh Perry Consulting Engineers Ltd.

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Report Number:	1901532
Date Submitted:	2019-01-31
Date Reported:	2019-02-06
Project:	CP-18-0512
COC #:	71572

#### QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No         360448         Analysis/Extraction Date         20           Method         C SM2340B	)19-02-06 <b>Ana</b>	lyst AET	
Hardness as CaCO3			
Ion Balance			
TDS (COND - CALC)			

Guideline = ODWSOG

\* = Guideline Exceedence

Results relate only to the parameters tested on the samples submitted. Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

# DRINKING WATER CHAIN OF CUSTODY



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 608 Norris Court, Kingston, ON K7P 2R9 Ph: (613) 634-9307 Fax: (613) 634-9308
 380 Vansickle Rd., Unit 630, St. Catharines, ON L2S 0B5 Ph: (905) 680-8887 Fax: (905) 680-4256
 2395 Speakman Drive, Mississauga, ON, L5K 1B3 Phone: (905) 822-4111 Fax: (905) 823-1446

71572 LABORATORY USE ONLY

Report #:

1901504

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Report Attention: (Required)		and a second second second second		Required)			Postal								
Dan Arnott			Cap ON KOA ILO								Fax Res	uits to:			
Phone: (Required)	Ext:		Project # Quotation # (if provided)							1	he optin	nal tempe	rature cond	itions during	transport must
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		Sample Type Code (see Codes below)	Resample? Y = Yes N = No	MOE/MOH Reportable? Y = Yes N = No	# of Containers	** Service Required R=Rush S=Standard	1. Sapler	cohi		1.4.5		Chlorine Residual (mg/L) e Combined	Tap Location (i.e. kitchen, fountain etc. for plumbing samples)	Criteria Required (i.e. Reg170, Reg318/319, Reg243, potability etc.)	Laboratory Identification Use Only
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Sample Type Codes for Drinking	Water Systems: RW = Raw Wa RP = Residen													stribution, DW	= Distribution
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# Certificate of Analysis

#### McIntosh Perry Consulting Eng. (Carp)

115 Walgreen Rd. Carp, ON KOA 1LO Attn: Rebecca Leduc

Client PO: Project: OCP-18-0512 Custody: 8263

Report Date: 1-Mar-2019 Order Date: 26-Feb-2019

Order #: 1909178

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1909178-01	TW1-1
1909178-02	TW1-2

Approved By:

Nack Foto

Mark Foto, M.Sc. Lab Supervisor

Any use of these results implies your agreement that our total liability in connection with this work, however arising, shall be limited to the amount paid by you for this work, and that our employees or agents shall not under any circumstances be liable to you in connection with this work.



#### **Analysis Summary Table**

Report Date: 01-Mar-2019 Order Date: 26-Feb-2019

Project Description: OCP-18-0512

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	27-Feb-19	27-Feb-19
Ammonia, as N	EPA 351.2 - Auto Colour	28-Feb-19	28-Feb-19
Anions	EPA 300.1 - IC	26-Feb-19	26-Feb-19
Colour	SM2120 - Spectrophotometric	26-Feb-19	27-Feb-19
Conductivity	EPA 9050A- probe @25 °C	27-Feb-19	27-Feb-19
Dissolved Organic Carbon	MOE E3247B - Combustion IR, filtration	27-Feb-19	27-Feb-19
E. coli	MOE E3407	26-Feb-19	26-Feb-19
Fecal Coliform	SM 9222D	26-Feb-19	26-Feb-19
Heterotrophic Plate Count	SM 9215C	26-Feb-19	26-Feb-19
Metals, ICP-MS	EPA 200.8 - ICP-MS	27-Feb-19	27-Feb-19
рН	EPA 150.1 - pH probe @25 °C	27-Feb-19	27-Feb-19
Phenolics	EPA 420.2 - Auto Colour, 4AAP	27-Feb-19	27-Feb-19
Subdivision Package	Hardness as CaCO3	27-Feb-19	27-Feb-19
Sulphide	SM 4500SE - Colourimetric	28-Feb-19	28-Feb-19
Tannin/Lignin	SM 5550B - Colourimetric	28-Feb-19	28-Feb-19
Total Coliform	MOE E3407	26-Feb-19	26-Feb-19
Total Dissolved Solids	SM 2540C - gravimetric, filtration	28-Feb-19	1-Mar-19
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	27-Feb-19	27-Feb-19
Turbidity	SM 2130B - Turbidity meter	26-Feb-19	26-Feb-19

### ARACEL ATORIES LTD.

#### Certificate of Analysis Client: McIntosh Perry Consulting Eng. (Carp) **Client PO:**

Order #: 1909178

Report Date: 01-Mar-2019

Order Date: 26-Feb-2019

Project Description: OCP-18-0512

	Client ID:	TW1-1	TW1-2	-	
	Sample Date:	02/25/2019 14:25	02/25/2019 16:35	-	-
	Sample ID:	1909178-01	1909178-02	-	-
	MDL/Units	Water	Water	-	-
Microbiological Parameters					
E. coli	1 CFU/100 mL	ND [1]	ND	-	-
Fecal Coliforms	1 CFU/100 mL	ND	ND	-	-
Total Coliforms	1 CFU/100 mL	ND [1]	ND	-	-
Heterotrophic Plate Count	10 CFU/mL	390	<10	-	-
General Inorganics	-		-		
Alkalinity, total	5 mg/L	211	217	-	-
Ammonia as N	0.01 mg/L	0.03	0.10	-	-
Dissolved Organic Carbon	0.5 mg/L	1.6	1.1	-	-
Colour	2 TCU	42	5	-	-
Conductivity	5 uS/cm	654	583	-	-
Hardness	mg/L	244	245	-	-
рН	0.1 pH Units	7.8	7.9	-	-
Phenolics	0.001 mg/L	<0.001	<0.001	-	-
Total Dissolved Solids	10 mg/L	422	392	-	-
Sulphide	0.02 mg/L	0.35	2.92	-	-
Tannin & Lignin	0.1 mg/L	<0.1	<0.1	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	<0.1	<0.1	-	-
Turbidity	0.1 NTU	24.8	9.9	-	-
Anions					
Chloride	1 mg/L	68	50	-	-
Fluoride	0.1 mg/L	0.9	0.9	-	-
Nitrate as N	0.1 mg/L	<0.1	<0.1	-	-
Nitrite as N	0.05 mg/L	<0.05	<0.05	-	-
Sulphate	1 mg/L	38	33	-	-
Metals					
Calcium	100 ug/L	60200	60700	-	-
Iron	100 ug/L	2430	106	-	-
Magnesium	200 ug/L	22700	22800	-	-
Manganese	5 ug/L	69	9	-	-
Potassium	100 ug/L	3650	4110	-	-
Sodium	200 ug/L	54300	43600	-	-



Order #: 1909178

Report Date: 01-Mar-2019 Order Date: 26-Feb-2019

Project Description: OCP-18-0512

#### Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Colour	ND	2	ΤČU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NŤU						
Metals									
Calcium	ND	100	ug/L						
Iron	ND	100	ug/L						
Magnesium	ND	200	ug/L						
Manganese	ND	5	ug/L						
Potassium	ND	100	ug/L						
Sodium	ND	200	ug/L						
Microbiological Parameters			3						
E. coli	ND	1	CFU/100 mL						
Fecal Coliforms	ND	1	CFU/100 mL						
Total Coliforms	ND	1	CFU/100 mL						
Heterotrophic Plate Count	ND	10	CFU/mL						



#### Order #: 1909178

Report Date: 01-Mar-2019

Order Date: 26-Feb-2019

Project Description: OCP-18-0512

#### Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	68.5	1	mg/L	67.7			1.1	10	
Fluoride	0.92	0.1	mg/L	0.93			0.9	10	
Nitrate as N	ND	0.1	mg/L	ND				20	
Nitrite as N	ND	0.05	mg/L	ND				20	
Sulphate	38.6	1	mg/L	38.4			0.3	10	
General Inorganics			-						
Alkalinity, total	210	5	mg/L	211			0.5	14	
Ammonia as N	0.045	0.01	mg/L	0.034			28.0	18	QR-01
Dissolved Organic Carbon	2.3	0.5	mg/L	2.3			1.8	37	
Colour	41	2	тču	42			2.4	12	
Conductivity	644	5	uS/cm	654			1.5	11	
рН	7.9	0.1	pH Units	7.8			0.4	10	
Phenolics	ND	0.001	mg/L	ND				10	
Total Dissolved Solids	368	10	mg/L	392			6.3	10	
Sulphide	0.33	0.02	mg/L	0.35			4.7	10	
Tannin & Lignin	ND	0.1	mg/L	ND			0.0	11	
Total Kjeldahl Nitrogen	ND	0.1	mg/L	ND				10	
Turbidity	25.1	0.1	NTU	24.8			1.2	10	
Metals									
Calcium	110000	100	ug/L	122000			10.2	20	
Iron	ND	100	ug/L	ND			0.0	20	
Magnesium	26500	200	ug/L	29600			11.2	20	
Manganese	413	5	ug/L	437			5.7	20	
Potassium	14100	100	ug/L	16100			13.4	20	
Sodium	165000	200	ug/L	187000			12.3	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL	ND				30	BAC14
Fecal Coliforms	ND	1	CFU/100 mL	ND				30	
Total Coliforms	ND	1	CFU/100 mL	ND				30	BAC14
Heterotrophic Plate Count	330	10	CFU/mL	390			17.0	30	



#### Order #: 1909178

Report Date: 01-Mar-2019

Order Date: 26-Feb-2019

Project Description: OCP-18-0512

#### Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	75.5	1	mg/L	67.7	78.4	78-112			
Fluoride	1.92	0.1	mg/L	0.93	99.1	73-113			
Nitrate as N	1.02	0.1	mg/L	ND	102	81-112			
Nitrite as N	0.852	0.05	mg/L	ND	85.2	76-117			
Sulphate	47.4	1	mg/L	38.4	90.0	75-111			
General Inorganics									
Ammonia as N	0.305	0.01	mg/L	0.034	108	81-124			
Dissolved Organic Carbon	11.4	0.5	mg/L	2.3	91.4	60-133			
Phenolics	0.024	0.001	mg/L	ND	94.8	69-132			
Total Dissolved Solids	76.0	10	mg/L		76.0	75-125			
Sulphide	0.82	0.02	mg/L	0.35	95.4	79-115			
Tannin & Lignin	0.9	0.1	mg/L	ND	86.2	71-113			
Total Kjeldahl Nitrogen	1.91	0.1	mg/L	ND	95.3	81-126			
Metals									
Calcium	10600		ug/L		106	80-120			
Iron	2410		ug/L	ND	95.7	80-120			
Magnesium	35000		ug/L	29600	53.6	80-120		Q	M-07
Manganese	448		ug/L	437	21.1	80-120		Q	M-07
Potassium	23300		ug/L	16100	71.5	80-120		Q	M-07
Sodium	10600		ug/L		106	80-120			



#### **Qualifier Notes:**

#### Sample Qualifiers :

1: A2C - Background counts greater than 200

#### QC Qualifiers :

BAC14: A2C - Background counts greater than 200

- QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.
- QR-01 : Duplicate RPD is high, however, the sample result is less than 10x the MDL.

#### Sample Data Revisions

None

#### Work Order Revisions / Comments:

None

#### **Other Report Notes:**

n/a: not applicable ND: Not Detected MDL: Method Detection Limit Source Result: Data used as source for matrix and duplicate samples %REC: Percent recovery. RPD: Relative percent difference.

G PARA (	ES L1		Parac			101			cellabs.com	vd. J8 .com	Paracel	Order	Number		Ont		Drink	king V	Custo Vater 326	Sampl	les
Client Name: MUNOSIN TEXT	Mainters Pro	ject Ref:	DU	- (	6-1	05	12		Vaterworks Nat	ne:							Sampi	les Tak	ien By:		
Contact Name: Relocala La	due au	ote #:							Vaterworks Nur	nber:				Name	1	1	th	τ.[]	UA I	ed	ul
Address: U.S. Walat		#:						4	ddress:					Signal	ure:				du		
Viter Hours Contact:	E-m	uli:	Y-1-1	Alle	e	M	hint.		WY - CO While Health Un	-			_	-		Turn /	age Aroun	<u>ر</u> d Tim	e Requ		tau.
amples Submitted Under: (Indicate ONLY on		0		Sou	rce T	ype:	G =	Ground	Treated ; D = Nater; S = Sur reporting as p	face Wi	ater		No				-	-	Anal	-	
Have LSN forms been submitted to MOE/MO Are these samples for human consumption?: All information must be completed b	□ Yes 🗄 No		cessed.	Sample Type: R/T/D/P	Source Type: G / S	Reportable: Y / N	Resample		SAMPLE CO			# of Containers	ree/Cambined Chlorine Residual mg/L	Standing / Flushed: S/F {REG 243}	Total Coliform/E. Coli	HINC	Lead.	THM	damaters (1	-	
LOCATION NAME	SAN	APLE ID		Sample Tyr	Source T	Reporta	Resa	1	DATE		TIME	# of Co	Free/Cambi Residu	Standing.	Total Co				Sulada		
1 Maple creek Lough	TIMI-	1		K	6	R	28	25-1	26-19	1	:25	8							Y	T	T
2 Mayle Erter Well	TINI	-2		K	4	N	N	25-	F-64-19	11	0=35	3							A		
3																					
4										_	_										
5			_																		
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9		_	-		_					_											
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elinquished By (Print): ate/Time: 24-FeV-WIAL		Date/Til		10	2/	19		\$ 50	Date/Tim	a	zale	011	:15-	Date/Ti pH Veri	(	32/	26	<u>ky</u>	t	35	ipr

Chain of Custody (Drinking Water).alsx

Revsion 2.0

# HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX F PHOTOGRAPHIC LOG

MCINTOSH PERRY



Photo 1: Preliminary image of the Site.



Photo 2: Scrap/debris storage on Site.



Photo 3: Well TW1.



Photo 4: First opening of TW1 during the Site visit.



Photo 5: General location of TW1, along the northern boundary of the Site.



Photo 6: Step test set-up, January 30, 2019.



Photo 7: Step test set-up with pump projecting water overland away from well, January 30 2019.

# HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX G LANGELIER SATURATION INDEX (LSI) AND RYZNAR STABILITY INDEX (RSI) CALCULATIONS

MCINTOSH PERRY

#### Langelier Saturation Index (LSI)

If LSI is negative: No potential to scale, the water will dissolve CaCO<sub>3</sub> If LSI is positive: Scale can form and CaCO<sub>3</sub> precipitation may occur

If LSI is close to zero: Borderline scale potential. Water quality or changes in temperature, or evaporation could change the index.

The LSI is probably the most widely used indicator of cooling water scale potential. It is purely an equilibrium index and deals only with the thermodynamic driving force for calcium carbonate scale formation and growth.

#### $LSI = pH - pH_s$

Where:

pH is the measured water pH

pH<sub>s</sub> is the pH at saturation in calcite or calcium carbonate and is defined as:

#### $pH_s = (9.3 + A + B) - (C + D)$

Where:

$$\begin{split} A &= (Log_{10} \ [TDS] - 1) \ / \ 10 \\ B &= -13.12 \ x \ Log_{10} \ (^{\circ}C + 273) + 34.55 \\ C &= Log_{10} \ [Ca^{2+} \ as \ CaCO_3] - 0.4 \\ D &= Log_{10} \ [alkalinity \ as \ CaCO_3] \end{split}$$

TW1				
рН	7.9		A	0.159329
TDS	392		В	2.49439
Hardness	245		С	1.989166
Alkalinity	217		D	2.33646
Temp.	4.5			
pHs =				7.628092
LSI =				0.271908
RSI=				7.356185

#### **Ryznar Stability Index (RSI)**

RSI = 2(pHs) - pH

Where:

pH is the measured water pH

pHs is the pH at saturation in calcite or calcium carbonate

The empirical correlation of the Ryznar stability index can be summarized as follows:

RSI << 6 the scale tendency increases as the index decreases

**RSI** >> 7 the calcium carbonate formation probably does not lead to a protective corrosion inhibitor film

RSI >> 8 mild steel corrosion becomes an increasing problem.

# HYDROGEOLOGICAL STUDY NCM HYDROVAC SERVICES - 200 MAPLE CREEK COURT



APPENDIX H OTTAWA SEPTIC SYSTEM OFFICE – SEPTIC SYSTEM INFORMATION

# MCINTOSH PERRY



Ottawa Septic Bureau des systèmes System Office septiques d'Ottawa



Main Phone: 613-692-3571 x 1129

REQUIRED FOR ALL

# **Inspection Request Form**

Complete and fax to: 613-692-1507 or e-mail: septic@rvca.ca

Date Submitted					Septic	<b>File Numbe</b>	r:	
Civic Address			di 2019 wa Anna Silina a Sakata Nakata Nakata	and the second second			and the second second	
	□ Osgoode		Cumberland	Go	ulbourn	□ Torbolton	□ Nepean	
Former Township	Huntley		Rideau	G	oucester	□ Fitzroy	C Kanata	D Ottawa
Property Owner		a tanan karangan kara		WERE LOUGH BUILD		AND THE PARTY OF T		and a second design of the second

# Section B. Requestor Information

Name of Requestor			Phone Number:	
E-mail			Fax Number:	
I am the (check one)	Installer	Engineer	Property Owner	

#### Section C. I am Requesting the following:

□ 1 <sup>st</sup> - Subgrade (If required - check one):	2 <sup>nd</sup> – Installation Inspection (Check all that apply)	<b>3</b> <sup>rd</sup> – Final Grade Inspection				
Scarification Refer to attached:		Note: Topsoil must be applied				
Clay Seal	As-Built Components Page	unless winter conditions exis				
□ Subgrade	As-Built Drawing	at Director's discretion				
	Engineers Letter					
	Filter Media Bills	All deficiencies must be				
	Grain Size Analysis	addressed from installation				
	Maintenance Agreement	report				
	ESA Permit Number:					
Notes/Comments						

□ Re-inspection - 1 <sup>st</sup> call	□ Re-inspection Request – 2 <sup>nd</sup> call						
1	Note: Re-inspection Please provide payn		sts for same deficiency – ow				
	Card Type:	□ Mastercard	🗆 Visa				
	Card Number:		Expiry:				
	Cardholder Name:						
Notes/Comments							

Please Note:

- 3-5 business day turn around for inspections
- OSSO file will be given to inspector upon receipt of this request form
- PRIORITY will be given to requests that have septic file/permit numbers

Submit	Reset	Print
--------	-------	-------

Ottawa Septic Bureau des systèmes System Office septiques d'Ottawa

# **AS-BUILT COMPONENTS**

(required prior to installation inspection)

Date Purchased:

Supplier:

SEPTIC APPLICATING SEPTIC PERMIT NO. T REQUIRED FOR ALL INQUIRIES

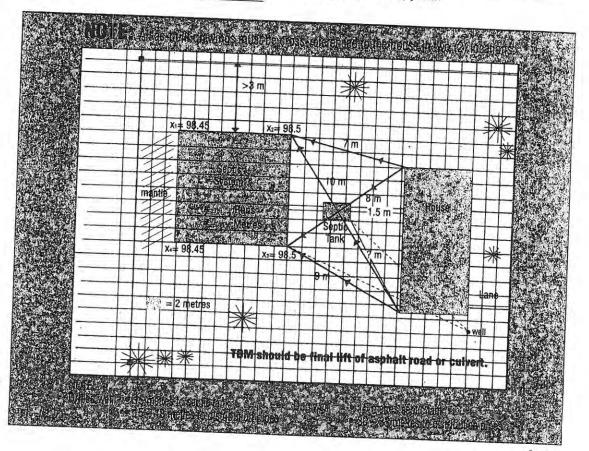
# Elevations of installed system must be supplied with this report (in reference to the TBM).

Exact size and location of all structures, well(s) and system(s) and its components must be shown (including neighbouring lots).

Manufacturer:	L	Name of owner:
concrete     plastic     Filter:     no     yes     Treatment:     Make	other     make	Installer Signature: License Number:
		Date of Installation:
Diameter of pipes Make of pipes:		Pump Systems: ESA Permit #:
Ends: Capped Cantercon	nected	Volume discharge rates:/15min Alarm location:/15min
Length of runs: Stone area	m	Dimension of Pump Chamber:
Filter media:		Height of Float Switch: Grease Interceptor:
Amount Purchased: Date Purchased:		no yes Size: Location:
Supplier:		
Grain/size analysis by:		
Analysis dated:		
Stone:		
Amount Purchased:	ka	* Grain Size Analysis and weight bills must be supplied

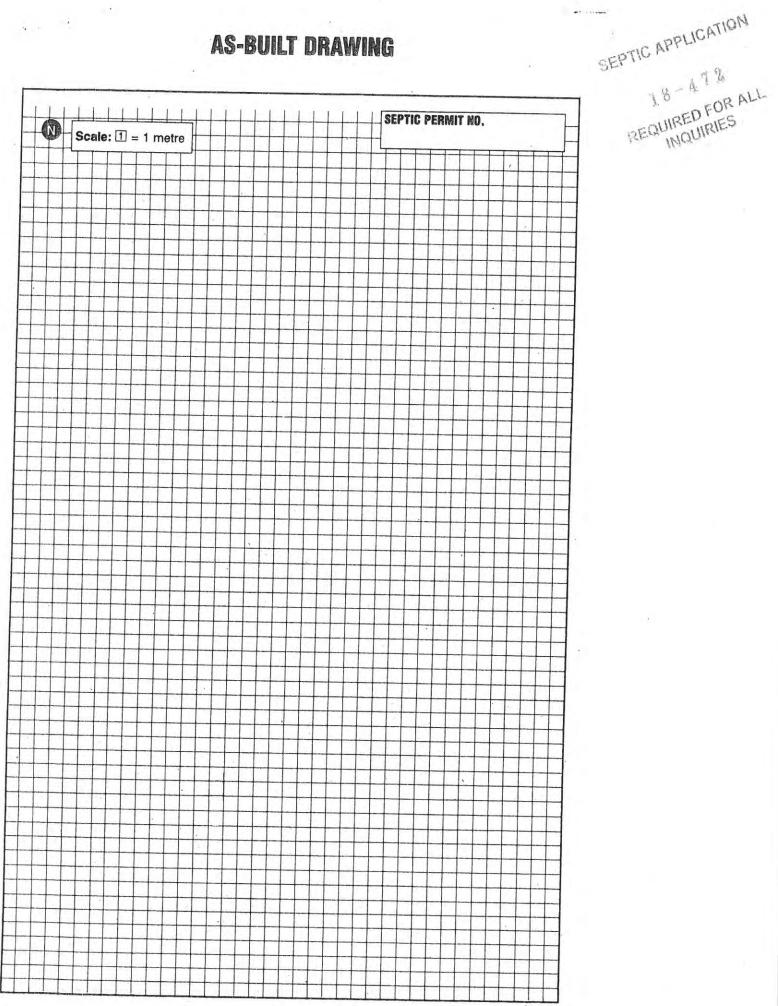
# with this report.

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# **AS-BUILT DRAWING**

\*\*\* \* \* \*



Page 3 of 3

-----

Entry #: 3			Page:
Rideau Valley C. A. P.O. Box 599		DOCUMENT NO .:	PY000031797
Manotick, Ontario K4M 1A Canada Phone: (613) 692-3571	5		DATE: 8/31/2018
Fax: (613) 692-0831			
AMOUNT RECEIVED			936.00 CAD
FROM Green Valley E	Environmental		
		0.0147	-1
		SIGNAT	
PAID BY: CHECK	CHECK/RECEIPT NO.:	000011947-00003 DATE	RECEIVED: 9/4/2018
	DESCRIPTION		AMOUNT
4300-20-20600	200 Maple Creek (HUN) Septic 18-472		936.00
		SUB-TOT	AL: 936.00

Jue. Court	Cell No.: Fax No.: 613-836-6128	6	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	I, the above – mentioned authorize Green Valley Environmental Services to act as my agent to apply for and obtain a sewage system permit from the responsible Approval Agency. For when $A = A = A = A = A = A = A = A = A = A $
Owner: 243/144 Onterio Address: 200 Maple Grand Cap Ort	0	Lot No.: 7 RP 4R-17/6 Concession No.: 2 N PT Sub lot/Part No.: D Plan No.:	Civic Address: 200 Maple Good Count. Municipality: Roll No.: 0614.403.810.07410.0000 Commercial: (provide description of building and intended use) 10,900 P BL/9 & he wind	I, the above – mentioned authorize Green agent to apply for and obtain a sewage syst Agency. For it de have of o Signature: Den Norry

\*\*Commercial



#### PROPERTY INFORMATION INFORMATION SUR LA PROPRIÉTÉ



#### PROPERTY DIMENSIONS / DIMENSIONS DE LA PROPRIÉTÉ

a state and state in a local	045370627
FRONTAGE - ft / FAÇADE - pi:	101.73
DEPTH - ft / PRONFONDEUR - pi:	0.00
PROPERTY AREA - acre / SUPERFICIE - acre:	4.3300

#### SERVICES / SERVICES

PIN	WASTE COLLECTION PICK-UP DAY AND ZONE /
	JOUR ET ZONE DE LA COLLECTE DES ORDURES
	이 이 그는 것이 같다. 이번 것이 안 한 것이 가지 않는 것이 같은 것이 같이 많이 가지 않는 것이 있는 것이 같이 많이 했다.

045370627 Z1 WMI TUE A

#### WARD INFORMATION / INFORMATIONS WARD

PIN	WARD NUMBER / NUMÉRO DU QUARTIER	WARD NAME / NOM DU QUARTIER
045370627	5	WEST CARLETON- MARCH

COUNCILLOR NAME / NOM DU CONSEILLER - (ÈRE) Eli El-Chantiry

Application numb		Por use by Pr	incipal Authority		
Date received:	J.C.A.	3/18	Permit number (if differer	nt):	
Date received:	AUG 31	F	Roll number.		1.
Application submit	and the STREET OF	OTTAWA SEPTI	IC SYSTEM O	FFICE	
PP		nicipality, upper-tier municipa			
A. Project infor	mation			additionally)	-
Building number, si Municipality	200	MAPLE CRE	EK COURT	Unit number	Lot/con. Pt1r7 Con
Project value est. \$	UNTLEY	Postal code	Plan number/othe 서 우	r description - 17169 F	
			Area of work (m <sup>2</sup> )		HINI C
. Purpose of a	pplication				
New const	, ide	ition to an A	Alteration/repair	Demolition	Conditional
oposed use of buil	exis Iding	ting building			Permit
	MMERCIAL	Current us	se of building		
ecciption of					
escription of propos	INSTALL	A SEPTIC S	SYSTEM to	SERVICE	A
P Ro P A TT Applicant	INSTALL	A SEPTIC S MMERCIAL OFFICE SPA	WAREHOUSE	BUILDI	A ING WIT
PROP ATT Applicant	INSTALL DOSED CON FACHED	MMERCIAL OFFICE SPA	WAREHOUSE ACE Authorized agent o	fowner	ING WIT
PROP ATT Applicant st name	INSTALL DOSED CON FACHED	MMERCIAL OFFICE SPA Owner or	WAREHOUSE ACE Authorized agent o	fowner	ING WIT
PROP ATT Applicant st name eet address 107 Fire	INSTALL DOSED CON MACHED Applicant is:	MMERCIAL OFFICE SPA Owner or I First name ROAD, MANG	WAREHOUSE ACE Authorized agent o Corporation or partr GREEN VA	fowner	ING WIT
$\begin{array}{c} \rho & R \partial \rho \\ A & T \\ \hline \\$	INSTALL DOSED CON TACHED Applicant is:	MMERCIAL OFFICE SPA Owner or First name ROAD, MANO Postal code K4MIA7	WAREHOUSE ACE Authorized agent o Corporation or partr GREEN VA	fowner hership LLEY ENVIR	RONMENTA
PROP ATT Applicant at name 107 Fire 107	SED WORK INSTALL DOSED CON TACHED Applicant is: STLINE A TTAWA 2616	MMERCIAL OFFICE SPA Owner or I First name ROAD, MAND	WAREHOUSE ACE Corporation or partr GREEN VA. DTICK Province ON	fowner lership LLEYENVIN Unit number E-mail Cell number	RONMENTA
$\begin{array}{c} \beta & R & 0 & \beta \\ A & T \\ \hline \\$	SED WORK INSTALL DOSED CON TACHED Applicant is: STLINE R TTAWA	MMERCIAL OFFICE SPA Owner or First name ROAD, MANA Postal code K4MIA7 Fax 613) 692 -	WAREHOUSE ACE Authorized agent of Corporation or partr GREEN VA DTICK Province ON 1802	BUILDI fowner hership LLEYENVIN Unit number E-mail Cell number 6/3)229	RONMENTA
PROP ATT Applicant Applicant at name 107 Fire 107	SED WORK INSTALL DOSED CON TACHED Applicant is: STLINE A TTAWA 2616	MMERCIAL OFFICE SPA Owner or First name ROAD, MANO Postal code K4MIA7 Fax	WAREHOUSE ACE Authorized agent of Corporation or partr GREEN VA DTICK Province OM -1802 Corporation or partne	BUILDI fowner hership LEYENVII Unit number E-mail Cell number 6/3)229	RONMENTA Lot/con.
PROP ATA Applicant at name eet address 107 Firk 107 Fire 107	INSTALL INSTALL OSED CON TACHED Applicant is: STLINE A TTAWA 2616 ant from applicant)	MMERCIAL OFFICE SPA Owner or First name ROAD, MAWA Postal code K4M 1A7 Fax 613) 692 -	WAREHOUSE ACE Authorized agent of Corporation or partr GREEN VA DTICK Province ON -1802 Corporation or partne 2431144	BUILDI fowner hership LLEYENVIN Unit number E-mail Cell number 6/3)229	RONMENTA
PROP ATT Applicant at name 107 Fire 107 Fire 1000 Fire	SED WORK INSTALL DOSED CON TACHED Applicant is: STLINE A TTAWA 2616	MMERCIAL OFFICE SPA Owner or First name ROAD, MAWA Postal code K4M 1A7 Fax 613) 692 -	WAREHOUSE ACE Authorized agent of Corporation or partr GREEN VA DTICK Province OM -1802 Corporation or partne	BUILDI fowner hership LLEY ENVIN Unit number E-mail Cell number 6/3) 229 ership ONTARIO	RONMENTA Lot/con. 7-3900
PROP ATA Applicant at name eet address 107 Firk 107 Firm 107 First $107$ Firk 1000 First $1000$ First $10$	INSTALL DOSED CON TACHED Applicant is: STLINE A TTAWA 2616 ant from applicant) MAPLE CRE UNTLEY	MMERCIAL OFFICE SPA Owner or First name ROAD, MANA Postal code K4M 1A7 Fax 613) 692 - First name EK COURT, Postal code KOA 1 LO Fax ( )	WAREHOUSE ACE Authorized agent of Corporation or partre GREEN VA DTICK Province ON -1802 Corporation or partne Q431144 CARP	BUILDI fowner hership LEYENVII Unit number E-mail Cell number 6/3)229 ership ONTARIO Unit number	RONMENTA Lot/con. 7-3900

Freena	Application for a Permit to	Construct or Demolish
11 11 11	this forms is suith it is a	

Last name	Corporation or partne	rship (if	applicable	
Street address		Unit	number	Lot/con.
116 3 1 cm	Province	E-ma	11	1
		Cell n (	umber )	
Tarion Warranty Corporation (Ontario New Home Warr	ranty Program)			
<ul> <li>Is proposed construction for a new home as defined in the C Plan Act? If no, go to section G.</li> </ul>	Ontario New Home Warrantie	s	Yes	No 1
ii. Is registration required under the Ontario New Home Warran	ation Plan Arth			
	nies Plan Act?		/es	No V
iii. If yes to (ii) provide registration number(s):				
. Required Schedules				
		_		
Attach Schedule 1 for each individual who reviews and takes respo	onsibility for design activities.			
Attach Schedule 2 where application is to construct on-site, install o	or repair a sewage system.			
Completeness and compliance with applicable law				
Building Code (the application is made in the correct form and by the applicable fields have been completed on the application and required schedules are submitted). Payment has been made of all fees that are required, under the application made under clause 7(1)(c) of the <i>Building Code Act</i> , 199 application is made.	red schedules, and all requir plicable by-law, resolution or 2, to be paid when the	red Yi	es	No
This application is accompanied by the plans and specifications pre- resolution or regulation made under clause 7(1)(b) of the Building C	Ode Act 1002		es	No
I his application is accompanied by the information and documents p law, resolution or regulation made under clause 7(1)(b) of the Buildi the chief building official to determine whether the proposed building contravene any applicable law.	prescribed by the applicable ing Code Act, 1992 which en g, construction or demolition		es	No
The proposed building, construction or demolition will not contravene	e any applicable law.	Ye	5. /	No
Declaration of applicant		1.0	°V	INC
STEPHEN BASSETT			decl	are that:

Personal Information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the Building Code Act, 1992, and will be used in the administration and enforcement of the Building Code Act, 1992. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, MSG 2E5 (416) 585-6666.

Application for a Permit to Construct or Demolish - Effective January 1, 2014

Schedule	1:	Designer	Informatio
OF OF LEVER COLE		Residine	Intormatic

	and the state of the state	Ser a	i den anti-		
Use one form for each indi	T.C.A.WE	2018	A descent desc escent descent desc		
Use one form for each indi	6 Olden Laurin	/ **	Sch	edule 1: De	signer Information
A. Project Information	NODAL WID LEVIEL	ws and takes	responsibility for design	activities with resp	ect to the project.
Building number, street nar	ne o di la	A			and the second se
Municipality	\$00 M	TAPLE C	REEK COURT	Unit no.	PTLT7 CON 2N
PIUNIL	RY	Postal code	Plan number/ other		
B. Individual who revis	ews and takes	responsibi	lity for design activi	ities	-17169 PART 6
Name STEPHEN Street address	BASS	ETT	Firm GREEN	1	ENVIRONMENTA
6101	FIRSTI	INE RO	AD, MANOTI		Lot/con.
Municipality RIDEAU - OT	TAWA	Postal code	Province ON	E-mail	
relephone number		Fax number	010	Cell numbe	AF.
(613) 692 - 26/6		(613) 69	12-1802	1 1	2-4 20
C. Design activities un Division C]	dertaken by in	dividual ide	ntified in Section B	[Building Code	Table 3.5.2.1 of
House		The second s			
Small Buildings			- House g Services	Build	ing Structural
Large Buildings		Detectio	on, Lighting and Power	Plum	bing - House
Complex Buildings Description of designer's wor		Fire Pro	tection		bing – All Buildings te Sewage Systems
D. Declaration of Design	ner				and the second
STEPHEN	BASSE	TT		declare that (at	
	(print name)				pose one as appropriate):
Individual B	CIN: 4	1185	ork on behalf of a firm firm is registered, in the	registered under su e appropriate class	bsection 3.2.4.of Division es/categories.
Firm BCIN:	/6	035			
	responsibility for 3.2.5.of Division			ppropriate category	∕ as an *other designer"
	mption from regi				
The design work i	s exempt from th	e registration	and qualification requir	ements of the Build	ling Code
Babio Ibi CACI	mption from regis	stration and qu	ualification:		ing oute.
outiny triat.					
<ol> <li>I have submitted this a</li> </ol>	pplication with th	ule is true to the knowledge	the best of my knowled and consent of the firm	ge.	
	lug 20		Signature of Designer	SB	assett.
IOTE:					- JAACNI

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) (c).of Division C, Article 3.2.5.1. of Division C, and 1. all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario. 2.

# Schedule 2: Sewage System Installer Information

A. Project Information Building number, street name		
200 MA	PLE CREEK COURT	Unit number Lot/con. PTLTT CON 2N
Municipality HUNTLEY Post	Plan number/ other d	lescription
B. Sewage system installer	4	1R-17169 PART 6
Is the installer of the sewage system engaged in emptying sewage systems, in accordance with B Ves (Continue to Section C)	the business of constructing on-si uilding Code Article 3.3.1.1, Divisi No (Continue to Section E)	ite, installing, repairing, servicing, cleaning or ion C? Installer unknown at time of application (Continue to Section)
. Registered installer information (who	as a second second	
Vame Q		1.000
Street address	UTIONS	BCIN 11234
6107 FIRST 4		Unit number Lot/con.
RIDEAU KHM	IAT Province ON	E-mail
613) 692 - 2616 (613	) 692-1802	Cell number (6/3) 229-3900
. Qualified supervisor information (whe	ere answer to section B is "Y	es")
ame of qualified supervisor(s)	Building Code Identificat	tion Number (BCIN)
BILL SEABROOM	< 112	34
Declaration of Applicant:		
STEPHEN BA	SSETT	declare that:
I am the applicant for the permit to constr shall submit a new Schedule 2 prior to co	uct the sewage system. If the inst nstruction when the installer is kno	aller is unknown at time of application, I
OR		itting a new Schedule 2, now that the installer
rtify that:		
1. The information contained in this schedule	is true to the best of my knowledge	e.
2. If the owner is a corporation or partnership,		
Date 31 AUG 2018	Signature of applicant	S. Basseld.

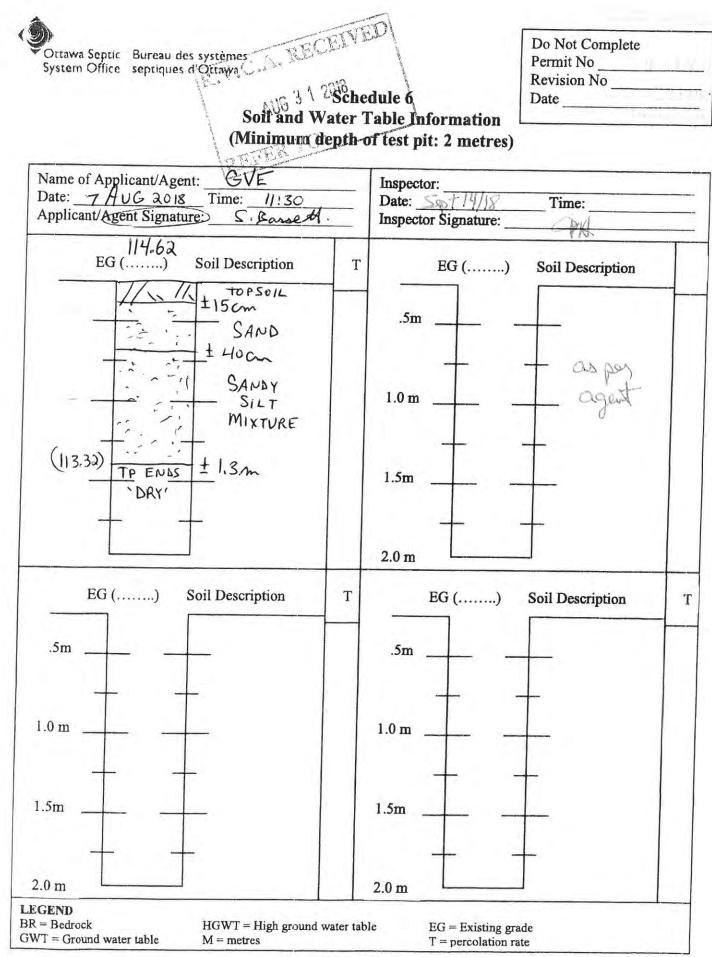
1

- And	
Ottawa Septic Bureau des systèmes	Do Not Complete Permit No
System Office septiques d'Ottawa	Revision No.
Vottawa Septic Bureau des systèmes System Office septiques d'Ottawa Complete Section AUG 3 1 2018 Complete Section Complete Section AUG 3 1 2018 Complete Section Complete Section	Date
Proposed	Services
100	ons 1 thru 7
1. Engineered	2. Water supply
Yes Vistor	Proposed
UN0	Existing
3. Type of work proposed	4. Type of Well
New Installation	Durg/bored/Sandpoint well
Replacement	Drilled well
□ Alteration	Municipal
	□ Other
5. <u>Residential</u> Sewage Design Flow Info.	6. Sewage Design Flow Other Occupancies
Bedrooms House (floor area) m <sup>2</sup>	Design Flow <u>2850</u> L/day
People	NAREHOUSE W. 10 BAYS = 10x 150 = 1500 L
I Otal Fixture Units (Schedule 8)	OFFICE 168 m2 754/9.3 m2 = 1355L
Residential Flow L/day	SX OFFICE STAFF) TOTAL FLOW = 2855 / 04
	Class 4 - BMEC Area Bed (Schedule 11)
7. Type of System	Fully raised
Treatment Unit NORWECO 3020-31	Partially raised
Class 2 – Leaching Pit	□ In-ground
$\Box$ Class 3 – Cesspool	Class 4 – "Type A" Dispersal (Schedule 13)
Class 4 – Shallow Buried Trench	□ Fully raised
Class 4 – Trench (Schedule 9)	Partially raised
Fully raised	In-ground
Partially raised	Class 4 – "Type B" Dispersal (Schedule 14)
In-ground	Fully raised
Class 4 – Filter Media (Schedule 10)	Partially raised
Fully raised	In-ground
Partially raised	
In-ground	Class 5 – Holding Tank (9000L min)
	Tank/TreatmentUnit/PumpChamber ONLY Effluent Filter/Risers ONLY
	L Diffuent Filter/Risers UNLY

OSSO Version June 2014

	a Septic Bureau des-systemes n Office septiques d'Ottawa	Sewage Syst	ule 5	Permit No Revision No Date
[	Type of System	4 - SHAL	LOW RUBIEN +	RENCH (Schedule 4)
1	Septic/Holding Tank Size:	Litres		(Belieduie 4)
	Septic Tank Effluent Filter Make:			
-				
T	Freatment Unit - Make & Model	Norw	ECO 3020-3W	
	Number of Units	s: 1	Other:	
R	Refer to Typical Drawing # PC	-5-1169		uired LIBERTY 3/4 Hp
	fantle Information:			TIMED DOSED 1/15min
	Native or imported =15m in	direction		arm required for all
			pumping	
S	lope subgrade	/% slo		
	/		ion(s)	
Si	ite to be Scarified (If clay)	YES (NO)		
CI	lay Seal Required (If bedrock)	YES / NO		
D	Trench		-/	
	Distribution Pipe Length	m	Shallow Burie	d Trench
	Loading Area	m <sup>2</sup>	Pipe Length	58.0 <sub>m</sub>
	Type of Chamber			
	Length of Chamber	m	Filter Media B	ed
	BMEC Area Bed	*	Stone	m²
	Туре А			m²
	Туре В			m
3	Stone	m²		Media Kg
3	Sand			0
3				
3	Pipe			
ב		$L/m^2$		
3	Pipe	hamber Replac	ement ONLY	

OSSO version June 2014

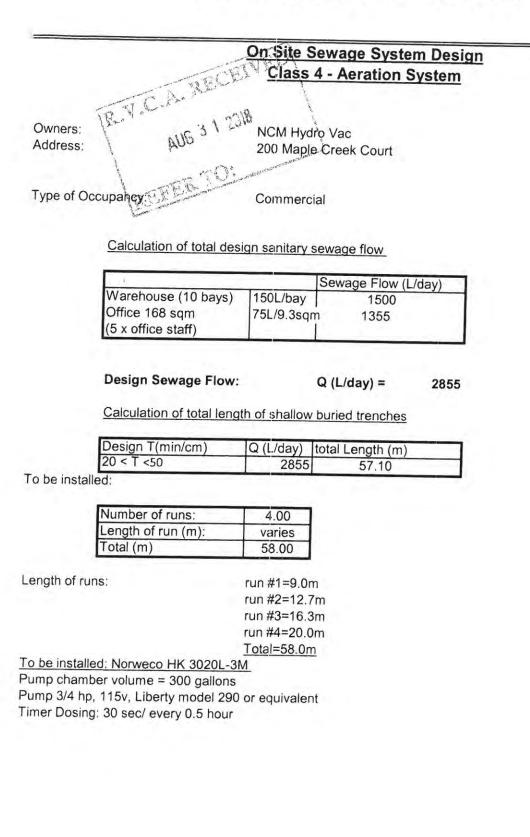


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OSSO version June 2014

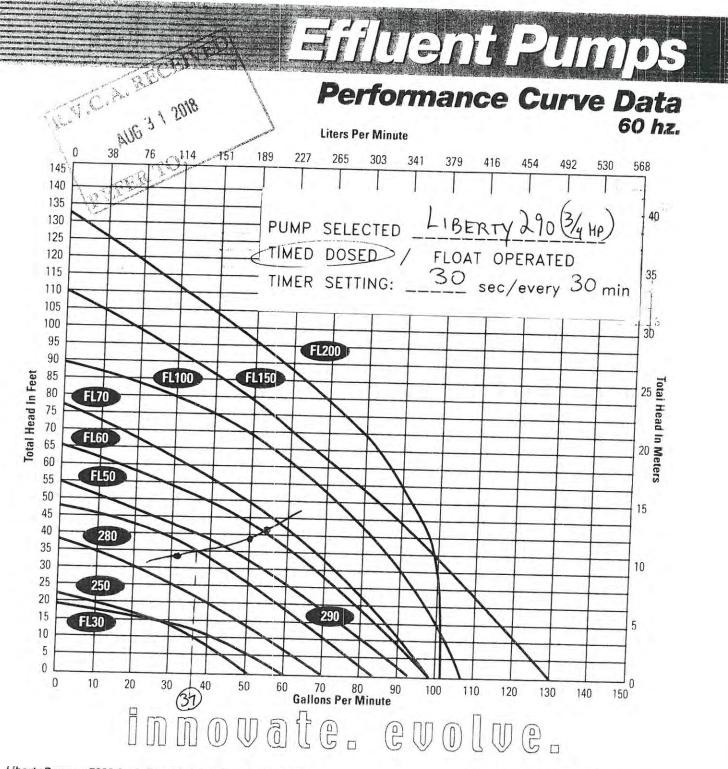
Ottawa Septic Bureau des systèm System Office septiques d'Ottaw Scale: 1Block =	AUG 3 Schedu Layout S	lle 7 ection	Do Not Complete Permit No Revision No Date
- N			
	A Cheve		
Ste	SPT		
Dug Well ●Drilled Well ▲ Neigh Evations (metric only) MM M DescriptionMAILM act LocationALONG SCUTM SEE ATTACHED	TREE		$\begin{array}{c} \text{in proposed system area} \\ \hline X_2 \\ \hline X_4 \\ \hline X_6 \\ \hline X_8 \end{array}$

# **Green Valley Environmental Services**



200 MAPLE CREEK





Liberty Pumps • 7000 Apple Tree Avenue • Bergen, NY 14416 Phone 800-543-2550 Fax (585) 494-1839 www.libertypumps.com

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# **GREEN VALLEY ENVIRONMENTAL SERVICES**

200 Maple Creek Court

( m ): :: fices(m): calculated): orifices: :dge (m) ces:	nch):
Length of a Lateral ( m ): Number of Laterals: Input spacing of orifices(m): Number of orifices(calculated): chosen number of orifices: space of orifice to edge (m) total number of orifices:	diameter of orifice(inch): Squirt height (feet):
input input input output output	

diameter of orifice(inch): Squirt height (feet): Discharge of orifice (US gal/orifice x min) Flow in a lateral (US gal/min x lateral) Total discharge (US gal/min)	Total discharge (Imp. gal/min)
--	--------------------------------

# Total Dynamic Head (ft)

(metric)

input input input input output output	Length of force main(m) Diameter of force main (in/cm) Length of manifold (m) Diameter of manifold (in/cm) Length of lateral (m) Diameter of lateral (in) Friction loss in forcemain (m/ft) Friction loss in manifold (m/ft)
output estimated input input	Friction loss in lateral (m/ft) Fittings' loss (estimated) (m/ft) Residual head on orifice (ft) Elevation difference(assumed, from low water level in pump tank to manifold) (m)
output	TDH (estimated) (m/ft) Q (gpm)

6601 First Line Road, Manotick. Ontario. K4M 147	Box 882, Tel. (613) 692-2616, Fax: (613) 693-1802
c. Ontario.	<sup>-</sup> ax: (613)
Manotick	32-2616, F
ine Road,	l. (613) 69
11 First L	882, Tel
660	Box

01 01					
10.40	16.40	16.40	16.40	16 40	16.40
1.50	1.50	1.50	1 50	1 50	01.0
19.65	19.65	10 GE	10.01	00.0	nc-1
A FO	00.01	13.00	CO.61	19.65	19.65
nc.1	09.1	1.50	1.50	150	1 50
65.62	65.62	65.62	65.62	65.62	00.1
1.50	1.50	1 50	1 50	4 50	70.00
1 20		22.	00-1	nc-1	1.50
PC-1	3.24	3.83	4.42	5.00	5 58
0.55	1.29	1.53	1 76	0000	0000
0 14	0 22	0000		4.00	C7.2
	0.00	0.39	0.45	0.51	0.57
10.00	10.00	10.00	10.00	10.00	10.00
2.00	5.00	6.00	7 00	00 8	00.01
10 60	10.00	0001	20.	0.00	9.00
0.00	19.09	19.69	19.69	19.69	19.69

67.22 101.81

47.06 68.30

45.20 64.39

43.32 60.23

41.44 55.77

39.55 50.91

32.20 33.77

10.29

I pump tank

als:	orifices(m):	es(calculated):	of orifices:	to edge (m)	orifices:	

0.12 7.00 0.46 15.06 60.23 228.01 211.10 6.00 0.42 13.94 55.77 0.39 12.73 42.39 192.70 50.91 121.88 26.81 2.00 0.24 8.05 32.20

R.V.C.A. RECEIVED

0.60 32.33 33.00 0.40

32.33 33.00 0.40

32.33 0.60

> 32.33 33.00 0.40

0.60 32.33 33.00

32.33 33.00 0.40

20.00 4.00

20.00 4.00 0.60 32.33 33.00 0.40

20.00 4.00 0.60

20.00

20.00 4.00 0.60

20.00

20.00 4.00 0.60

4.00

In/Output

AUG 3 1 2018

1-0

0.12 9.00

0.12

0.12

0.12 5.00

0.12

8.00

132.00

132.00

132.00

132.00

132.00

0.40

0.40 132.00 20,00

25.45

68.30 258.54 56.87

64.39 243.75

53.62

50.16

46.44

0.7

0.52

0.49

17.07

84.78

385.41 101.81

FALL THROUGH THE HYDRO-KINETIC® PLANT FROM INLET INVERT TO OUTLET INVERT IS SEVEN INCHES INLET INVERT IS TWELVE INCHES BELOW TANK TOP. © ON DEEPER INSTALLATIONS, PRECAST RISERS MUST BE USED TO EXTEND CASTINGS TO GRADE. INSPECTION COVERS MUST BE DEVELOPED TO WITHIN TWELVE INCHES OF GRADE. REMOVABLE COVERS ON RISERS WEIGH (5) AIR PUMP MAY BE MOUNTED INSIDE THE RISER ABOVE THE AERATION CHAMBER OR MAY BE REMOTE MOUNTED UP TO 100 FEET FROM TANK. BOTTOM LAYER CONTAINS 3" OF 314" TO I" BASE MATERIAL MIDDLE LAYER CONTAINS 2" OF 318" TO 112" BASE MATERIAL TOP LAYER CONTAINS 23" OF CAN/BNQ 3680-600 TREATMENT LEVEL PROJECT ENGINEER'S APPROVAL I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS IN EXCESS OF SEVENTY-FIVE POUNDS EACH TO PREVENT UNAUTHORIZED CONTRACTOR'S CERTIFICATION: I (WE) HEREBY CERTIFY THAT THIS DRAWING HAS BEEN CHECKED AND IS APPROVED. CLAN MMC 05-27-2016 NTS TANK REINFORCED PER ACI STD. 318 PC-5-1160 -10-2017 PHOS-4-FADE ADSORPTIVE MEDIA. CLASS B - IV, D - I, N - I, P -CRITICAL DIMENSIONS N 0'- 2 1/2' 3.-7 112 7.0" 1.4 -8-.9 .9-.5 ..... 4.- 7" -0-,2 -0-.2 5. 6. 1.4" norweco. 区 1···1 On periodic and the second sec Incordo wave inco wide poster and wasteware a masteware a the and process and change and process and GENERAL NOTES APPROVED. ACCESS. Al 1'-0" DATE: 2.-9" 2.- 8" 3.- 7. 2.- 3-9.- 3" DATE NAME 1.0.1 K 0'- 3" 1 - .0 H 11:11 0'- 3" L 0.- 2" U.S AND FOREIGN PATENTS PENDING WWXVII e 0 0 1 6 FLOW EQUALIZATION DEVICE DETAIL GROUT OR SYNTHETIC SEAL 0 C NOTE: TOTAL SYSTEM CAPACITY: 13.670 LITERS RATED CAPACITY: 3.020 LITERS PER DAY OUTLET COUPLING TO 4" DIAMETER EFFLUENT LINE OUTLET END VIEW 0 臣 0 uno. Ø 60° FILTER MEDIA (SEE NOTE 6) REMOVABLE INSPECTION COVER WITH CAST-IN-PLACE HANDLE 4" DIAMETER EFFLUENT LINE BIO-FILM REACTOR RISER CASTING WITH LID N PHOS-4-FADE FILTER CLARIFICATION CHAMBER RISER FLOW EQUALIZATION DEVICE SOLVENT WELD CONNECTION 4" DIAMETER TRANSFER PIPE (TYP) HIGH WATER ALARM FLOAT CASTING WITH LID (SEE DETAIL) REACTOR ELEMENT OUTLET TEE D A state of the sta INFLUENT CHAMBER MEDIA CHAMBER CLARIFICATION CHAMBER MODEL SD103 RECIRCULATION PUMP SUBMERGED TRANSFER PORT REMOVABLE INSPECTION COVER AERATION CHAMBER CLARIFICATION CHAMBER WITH CAST-IN-PLACE HANDLE 40 1. 1. 1. a 1. a PLAN VIEW B 1 . J. I. N 0 Z -09 SECTION A-A 0-0 中 t DIFFUSER BAR AERATION CHAMBER 100 ANOXIC CHAMBER C PRETREATMENT CHAMBER MINIMUM REQUIREMENTS SHALL BE: 1,390 LITERS CAPACITY, 28 LITERS FER INCH OF LIQUID LEVEL AND 9 INCHES OF FREEBOARD. an - a . . . ø E Y  $\square$ C. N. M. Let a=#== Ø NORWECO FRESH AIR VENT ASSEMBLY OPTIONAL PRETREATMENT CHAMBER RISER CASTING WITH LID REMOVABLE INSPECTION COVER N WITH CAST-IN-PLACE HANDLE PRETREATMENT CHAMBER  $\geq$ AERATION CHAMBER RISER SUBMERGED TRANSFER PORT CASTING WITH VENTED LID ANOXIC CHAMBER RISER PRETREATMENT CHAMBER APPROVED SEALANT OR SEALING DEVICE MODEL A150 AIR PUMP CASTING WITH LID ANOXIC CHAMBER TRANSFER TEE 團 MIXING BAR A -A NOTE 0 -

# \*\*Commercial\*\*

Ottawa Septic Bureau des systèmes System Office septiques d'Ottawa

Permit Part 8 – Sewage System Ontario Building Code

Revision No 7 2 Date 8 = 4 Related Application FOR ALL REQUIRIES	Do Not Complete	LICATION
Date 18 - 4	Ephil No	29
	Date _ 1 8 =	4 0

A copy of this permit must be posted on the property at all time dur This permit verifies that the on-site sewage system was reviewed and approved O.Reg. 323/12 as amended by O.Reg. 151/13.	for construction under the Ontario Building Code and
	Weather:
number of bedrooms:	fixture units: 2855 4/day
septic/holding tank/pretreatment tank L effluent filter pump rate <u>fime dosed</u> L/15 min treatment unit <u>Nonveco HK 3020-</u> 3M number of units L	weigh bills for filter media ves no grain size analysis required ves no site to be scarified ves no clay seal inspection ves no mantle required ves no sub-grade inspection ves
ELEVATION In Ground IP Partially Raised Fully Raise TYPE OF SYSTEM Trench Pipe and Stone or Chambers type of chamberm <sup>2</sup> loading aream <sup>2</sup>	